

1. Nerve supply of rhomboids major –

a) Spinal accessory nerve, cranial part

b) Spinal accessory nerve, spinal part

c) Dorsal scapular nerve

d) Thoracodorsal nerve

Correct Answer - C

Ans. is 'c' i.e., Dorsal scapular nerve

- Rhomboids major and minor are supplied by dorsal scapular nerve.

2. Which is the middle and large carpal bone ?

a) Scaphoid

b) Pisiform

c) Hamate

d) Capitate

Correct Answer - D

Ans. is 'd' i.e., Capitate

- Among the given options only capitate lies in middle (not lateral or medial) and it is the largest carpal bone.
- Scaphoid is lateral most bone in proximal row, pisiform is medial most bone in proximal row and hamate is medial most bone in distal row.

3. Radial tuberosity provides attachment to -

a) Brachialis

b) Biceps brachii

c) Triceps

d) Coracobrachialis

Correct Answer - B

Ans. is 'b' i.e., Biceps brachii (Ref: Elsevier's integrated anatomy Vol 2 p 30).

- An anterior, rough portion of tubercle - For insertion of tendon of biceps brachii.
- A posterior smooth portions of tubercle - Bursa interposed between tendon & bone..

4. Action of anconeus ?

a) Mild pronation

b) Flexion

c) Supination

d) Extention

Correct Answer - D
Ans. is 'd' i.e., Extention

5. TRUE/FALSE statements about radial nerve is/are:

- 1. Branch of posterior cord**
- 2. Nerve of extensor compartment of forearm**
- 3. Arise from C5 - T1**
- 4. Anterior interosseous nerve is a branch of it**
- 5. Supply skin of extensor compartment**

a) 1,2,3 true & 4,5 false

b) 1,2,3,4 true & 5 false

c) 1,2,3,5 true & 4 false

d) All are true

Correct Answer - C

Radial nerve is the largest branch of the posterior cord of the brachial plexus with a root value of C5 - C8 and T1. The radial nerve is commonly injured in the region of the spiral groove. this result in the wrist drop and sensory loss over a narrow strip on the back of forearm, and on the lateral side of the dorsum of the hand.

Posterior interosseous nerve is the branch of radial nerve given off in the cubital fossa while anterior interosseous nerve is a branch of the median nerve given off in the upper part of the forearm.

Skin of the back of the forearm (i.e. extensor compartment) is supplied by the posterior cutaneous nerve of the forearm which is a branch of radial nerve.

6. Which of the following arises from infraglenoid tubercle -

a) Longheadofbiceps

b) Longheadoftriceps

c) Shortheadofbiceps

d) Coracobrachialis

Correct Answer - B

Ans. is 'b' i.e., Long head of triceps

- Supraglenoid tubercle of scapula : origin of long head of biceps.
- Infraglenoid tubercle of scapula : origin of long head of triceps

7. Not a middle mediastinal structure ?

a) Pulmonary trunk

b) Phrenic nerve

c) Thymus

d) Heart

Correct Answer - C
Thymus

8. True about serratus anterior ?

a) Causes protraction

b) Causes lateral rotation

c) Supplied by thoracodorsal nerve

d) Forms lateral boundary of axilla

Correct Answer - A

Serratus anterior causes protraction of scapula.

- It is supplied by long thoracic nerve (Nerve of Bell).
- It forms medial boundary of axilla.

Serratus anterior

- *Origin* : Outer surface of upper 8 ribs by 8 digitations (multipennate muscles).
- *Insertion* : Medial border of scapula and inferior angle.
- *Nerve supply* : Long thoracic nerve (nerve of bell).
- *Actions* : Action of serratus anterior are -
- Rotates the scapula so that glenoid cavity is raised upward & forward - Helps in *Vertical over head abduction* (in this action assisted by trapezius).
- Draws the scapula forward around the thoracic wall so *paralysis leads to winging of scapula.*
- Also used when arm is pushed forward in horizontal position as in *forward punch* (helped by *Pectoralis minor* in this action).
- Steadies the scapula during weight carrying.
- Helps in *forced inspiration*.² (Accessory muscle of inspiration).
- Because of greater pull exerted on the inferior angle, inferior angle passes laterally and forward and the glenoid cavity is raised upward & forward; in this action the muscle is assisted by trapezius.

9. Deep branch of ulnar nerve supplies all except ?

a) Adductor pollicis

b) Abductor digiti minimi

c) Flexor digiti minimi

d) Opponens pollicis

Correct Answer - D

Various branches of ulnar nerve are :?

A) In arm : No branch.

B) In forearm : There are following branches :?

1) *Muscular* : In proximal part of forearm it supplies flexor carpi ulnaris and **medial** half of flexor digitorum profundus.

2) *Cutaneous* : There are two cutaneous branches in forearm:-

i) *Palmar cutaneous branch* : Supplies skin over the hypothenar eminence.

ii) *Dorsal (posterior) cutaneous branch* : Supplies skin over medial 1/3 of dorsum of hand and dorsal surface of medial 1 1/2 fingers.

C) In hand : Ulnar nerve enters the palm by passing superficial to flexor retinaculum and divides into two terminal branches :?

1) *Superficial terminal branch* : It supplies *palmaris brevis* and skin of palmar surface of medial 1 1/2 fingers.

2) *Deep terminal branch* : It supplies adductor pollicis, all interossei, medial two (3rd & 4th) lumbricals and all hypothenar muscles except palmaris brevis (i.e. abductor digiti minimi, flexor digiti minimi, opponens digiti minimi).

10. Not an abductor of shoulder ?

a) Deltoid

b) Trapezius

c) Supraspinatus

d) Latissimus dorsi

Correct Answer - D

Latissimus dorsi

- Abduction is initiated by supraspinatus, which is responsible abduction upto 15° . After that deltoid (acromial or middle fibers) is the major abductor upto 90° of abduction. These two muscles, supraspinatus and deltoid are the prime movers for abduction.
- Overhead abduction ($> 90^\circ$) is caused by trapezius and serratus anterior, which act by causing upward rotation of glenoid cavity.

11. All of the following movements occur during abduction of shoulder, except?

a) Elevation of humerus

b) Axial rotation of clavicle

c) Medial rotation of scapula

d) Acromioclavicular joint movement

Correct Answer - C

Abduction of shoulder is associated with lateral rotation of scapula.

12. Deltoid muscle causes all except –

a) Flexion of shoulder

b) Extension of shoulder

c) Internal rotation of shoulder

d) Adduction of shoulder

Correct Answer - D

Ans. is'd'i.e., Adduction of shoulder

Action of deltoid

1. Anterior (clavicular) fibres : Flexion and internal (medial) rotation of shoulder.
2. Middle (acromial) fibres : Abduction of shoulder.
3. Posterior fibres : Extension and lateral rotation of shoulder

13. Rotator cuff tear results from tear of one or more of the rotator cuff muscles and their associated tendons. Which is the most commonly injured rotator cuff muscle?

a) Supraspinatus

b) Infraspinatus

c) Teres minor

d) Subscapularis

Correct Answer - A

Supraspinatus is the most frequently injured muscle or tendon. Most of the injury result from overuse.

- **Supraspinatus muscle:** Its primary action is humeral abduction. The suprascapular nerve (C5–C6) and the suprascapular artery provide its innervation and blood supply.
- **Infraspinatus muscle:** Its primary action is lateral rotation of the humerus. The suprascapular nerve and the suprascapular artery provide its innervation and blood supply.
- **Teres minor muscle:** It causes lateral rotation of the humerus. The axillary nerve and circumflex scapular artery provide its innervation and blood supply.
- **Subscapularis muscle:** Causes medial rotation of the humerus with contraction. Upper and lower subscapular nerves and suprascapular, axillary, and subscapular arteries provide its innervation and blood supply.

14. Power grip of hand is due to -

a) Palmaris

b) Long flexors

c) Short flexors

d) Lumbricals

Correct Answer - B:C:D

Ans. is 'b > c & d i.e., Long flexors > Short flexors & Lumbricals

- In power grips, where considerable force may be required, the hand is used in addition to fingers.
- The flexors and extensors of wrist work strongly to fix its position, while long finger flexors and intrinsic muscles of hand work to grip the object.
- **There are four phases of power grip :-**
- Opening phase : Achieved by the synergistic muscle action of wrist flexors and finger extensors.
- Finger and thumb (optional) positioning phase : Requires extensor digitorum and intrinsic muscles of hand (lumbricals and interossei).
- Approach phase : Flexor digitorum profundus is the critical muscle.
- The muscles acting in this phase are FDP, FDS and wrist extensors. If thumb is active, thenar muscles are also involved.
- Static Grip phase : This is stabilization phase and is characterized by isometric muscle contraction and involves flexors and opposition muscles

15. Total number of dorsal interossei -

a) 2

b) 3

c) 4

d) 5

Correct Answer - C

Ans.C.4

Intrinsic muscles of Hand :

- 4 thenar muscles: Abductor pollicis brevis, flexor pollicis brevis, opponenspollicis, adductor pollicis.
- 4 hypothenar muscles: Palmaris brevis, abductor digitiminimi, flexor digitiminimi brevis, opponensdigitiminimi.
- 4 lumbricals
- 8 interossei: 4 dorsal interossei and 4 palmar interossei.

16. Division of radial nerve occurs at which level –

a) Anterior part of medial epicondyle

b) Anterior part of lateral epicondyle

c) Posterior part of medial epicondyle

d) Posterior part of lateral epicondyle

Correct Answer - B

Ans. is 'b' i.e., Anterior part of lateral epicondyle

Anterior to lateral epicondyle, the radial nerve divides into its two terminal branches :-

- .. The posterior interosseous nerve.
- ?. The superficial radial nerve.

17. Which of the following nerve carries fibres from all the roots of brachial plexus ?

a) Axillary

b) Ulnar

c) Median

d) Musculocutaneous

Correct Answer - C

Ans. is 'c' i.e., Median

Only two nerves carry fibres from all the roots of brachial plexus, i.e. C₅ to T₁, :?

1. Median nerve (C₅- T₁)
- Lateral root (C₅ - C₇)
 - Medial root (C₈ T₁)
2. Radial nerve (C₅ - T₁)

18. Benedict's hand is due to injury to -

a) Ulnar nerve

b) Median nerve

c) Axillary nerve

d) Radial nerve

Correct Answer - B

Ans. is'b'i.e., Median nerve

- Benediction deformity of hand (Benedict hand) and positive Benediction test are seen in median nerve injury.

19. Lower lateral cutaneous nerve of arm is a branch of -

a) Radial nerve

b) Axillary nerve

c) Median nerve

d) Musculocutaneous nerve

Correct Answer - A

Ans. is'a'i.e., Radial nerve

- Upper lateral cutaneous nerve of arm; Branch of axillary nerve.
- Lower lateral cutaneous nerve of arm + Branch of radial nerve

20. Axillary sheath is derived from?

a) Prevertebral fascia

b) Pretracheal fascid

c) Investing layer of deep cervical fascia

d) Deep fascia of throacic wall

Correct Answer - A

Ans. is 'a' i.e., Prevertebral fascia

The deep cervical fascia (fascia colli) has the following 6 layers:

- Investing layer
- Lies deep to the platysma
- Forms a pulley to hold tendons of digastrics and omohyoid
- Splits to enclose the parotid and submandibular glands; the suprasternal and supraclavicular spaces; and the sternocleidomastoid and trapezius
- Pretracheal layer
- Encloses larynx, trachea, esophagus and infrahyoid strap muscles
- Forms false capsule of the thyroid and the suspensory ligament of Berry
- Prevertebral fascia
- Forms axillary sheath around subclavian artery and brachial plexus
- Subclavian vein lies outside this sheath
- Carotid sheath
- Encloses the internal carotid artery, internal jugular vein and vagus nerve.
- Buccopharyngeal fascia
- Lies on the superficial aspect of the buccinators muscle and covers the superior constrictor muscle externally
- Pharyngobasilar fascia

- Lies deep to the pharyngeal muscles.

21. Artery forming anastomosis around surgical neck humerus -

a) 1st part of axillary artery

b) 2nd part of axillary artery

c) 3rd part of axillary artery

d) Subclavian artery

Correct Answer - C

Ans. is 'c' i.e., 3rd part of axillary artery

Anastomosis around surgical neck of humerus is formed by –

- 1. Anterior circumflex humeral artery.
- 2. Posterior circumflex humeral artery
- Both are branches of 3rd part of axillary artery.

22. An open arterial anastomosis in the shoulder occurs between the suprascapular artery and which other artery?

a) Anterior circumflex humeral

b) Circumflex scapular

c) Dorsal scapular

d) Thoracodorsal

Correct Answer - B

The circumflex scapular artery, the dorsal scapular artery, and the suprascapular artery create arterial anastomoses around the scapula. This means that the scapula will be supplied with blood even if one of these arteries is ligated. Additionally, if the subclavian or axillary artery needs to be ligated, blood can flow from the dorsal scapular artery and suprascapular artery to the circumflex scapular artery. This effectively shunts blood from the first part of the subclavian artery to the third part of the axillary artery so that the upper limb will still receive blood. The connection between the suprascapular and circumflex scapular arteries is termed an open anastomosis because it is grossly visible, compared to the anastomosis with the dorsal scapular, which typically happens within small vessels.

The *anterior circumflex humeral artery* supplies the deltoid muscle. It originates from the third part of the axillary artery and anastomoses with the posterior circumflex humeral artery. The *thoracodorsal artery* is a branch of the subscapular artery that supplies latissimus dorsi. The *transverse cervical artery* is a branch of the thyrocervical trunk that occasionally gives rise to the dorsal scapular artery. None of these arteries contribute to the scapular anastomosis.

23. Branches of brachial artery are all except ?

a) Profunda brachii

b) Superior ulnar collateral

c) Inferior ulnar collateral

d) Radial collateral

Correct Answer - D

Ans. is 'd' i.e., Radial collateral

- o Radial collateral is a branch of profunda brachii artery, which in turn is a branch of brachial artery (Radial collateral artery is not a direct branch of brachial artery).
- Brachial artery**
- o It begins as a continuation of axillary artery at level of lower border of teres major muscles. It terminates in the cubital fossa, opposite the level of neck of radius by dividing into radial and ulnar arteries. It gives following branches?
 1. Profunda brachii :- Accompanies radial nerve in the spiral groove and gives following branches?
 - .. Deltoid branch (ascending branch) :- It anastomoses with the descending branch of posterior circumflex humeral artery.
 2. Nutrient artery to humerus:
 3. Muscular branches
 4. Posterior descending (middle collateral) :- It anastomoses with interosseous recurrent branch of ulnar artery.
 5. Anterior descending (radial collateral) :It anastomoses with radial recurrent branch of radial artery in front of lateral epicondyle.
 2. Superior ulnar collateral artery :-Anastomoses with posterior ulnar recurrent branch of ulnar artery behind medial epicondyle.

3. Muscular branches

4. Inferior ulnar collateral (Supratrochlear artery) :- Anastomoses with anterior ulnar recurrent branch of ulnar artery in front of medial epicondyle.

24. Recurrent interosseous artery is a branch of -

a) Posterior interosseous artery

b) Anterior interosseous artery

c) Radial artery

d) None

Correct Answer - A

Ans. is 'a' i.e., Posterior interosseous artery

- Interosseous recurrent artery is a branch of posterior interosseous artery.

25. Branches of left coronary artery are all of the following except:

a) Anterior interventricular branch

b) Left diagonal artery

c) Left atrial artery

d) Posterior interventricular branch

Correct Answer - D

The left coronary artery, which is usually larger than the right coronary artery, supplies the major part of the heart, including the greater part of the left atrium, left ventricle, and ventricular septum.

- It arises from the left posterior aortic sinus of the ascending aorta.
 - It then enters the atrioventricular groove and divides into an anterior interventricular branch and a circumflex branch. Branches
 - The anterior interventricular (descending) branch /left anterior descending (LAD) runs downward in the anterior interventricular groove to the apex of the heart.
 - The anterior interventricular branch supplies the right and left ventricles with numerous branches that also supply the anterior part of the ventricular septum. One of these ventricular branches (left diagonal artery) may arise directly from the trunk of the left coronary artery.
 - The left circumflex artery (LCX) is the same size as the anterior interventricular artery. It winds around the left margin of the heart in the atrioventricular groove. A left marginal artery is a large branch that supplies the left margin of the left ventricle down to the apex. Anterior ventricular and posterior ventricular branches supply the left ventricle. Atrial branches supply the left atrium.
- Posterior interventricular branch: It is typically a branch of the right

coronary artery (80%, known as right dominance). Alternately, the Posterior interventricular branch can be a branch of the left circumflex coronary artery (20%, known as left dominance) which itself is a branch of the left coronary artery

26. The costal cartilages of these ribs do not reach the sternum -

a) 11th & 12th

b) 1st & 2nd

c) 6th & 7th

d) 8th, 9th & 10th

Correct Answer - D

Ans. is'd'i.e., 8th, 9th & 10th

Ribs

- There are 12 pairs of ribs.
- All articulate posteriorly with thoracic vertebrae.

The ribs are divided into two types.

- True ribs or vertebrosteral ribs :- These are 1st to 7th ribs which articulate directly with sternum through costal cartilages.
- False ribs :- These are 8th to 12th ribs and do not articulate directly with sternum.

False ribs can be divided into:

- **Vertebrochantral ribs:- 8th, 9th and 10th ribs whose costal cartilages articulate with each other and with 7th costal cartilage forming costal margin**
- Floating ribs vertebral ribs :- 11th and 12th ribs have free anterior ends

27. Which structures passes along with esophagus through esophageal opening of diaphragm ?

a) NC

b) Gastric nerves

c) Aorta

d) Thoracic duct

Correct Answer - B
Gastric nerves

28. True about normal expiration

- a) At the end of normal expiration air in lung is ERV
- b) At the end of normal expiration air in lung is ERV
- c) In expiration pleural pressure is equal to alveolar pressure
- d) Muscles that elevate the chest cage are classified as

Correct Answer - B

B i.e. At the end of normal expiration air in lung is ERV

- Muscles that elevate the chest cage (i.e. pull the ribs upwards and forwards, thus increasing both AP and lateral diameters = external intercostals) are muscles of inspiration whereas muscles that depress the chest cage (i.e. internal intercostals which pull ribs downward and inwards, decreasing the thoracic volume) are muscles of expiration.

- Elastic chest wall has a tendency to move outward which is balanced by inward recoil of alveoli. At FRC both are balanced

- *Pleural pressure is always lesser than alveolar pressure*, because it is a suction (slightly negative) pressure holding the lungs open

Amount of air remaining in lungs after a normal tidal expiration is functional residual capacity (FRC), which is equal to the sum of residual volume (RV) and expiratory reserve volume (ERV). ERV is the amount of air that can be inhaled with maximal effort in excess of tidal expiration. RV is amount of air remaining in lungs after maximum expiration; which keeps alveoli inflated between breathes and mixes with fresh air on net inspiration $FRC = RV + ERV$

Elasticity of Chest Wall and Lungs

- Chest wall and lung are elastic structures with an opposite

tendency to *move outwards and inwards respectively*. The effect of coupling the outward pull of thoracic cage to the inward recoil of lungs by means of intrapleural film is responsible for the constant negative intrapleural pressure and resists the total deflation of lungs. That is why if the chest wall is opened (in thoracic surgery) or pneumothorax is produced, the lungs collapse completely while the thoracic cage expands (upto 600ml) and becomes barrel shaped. Elastic recoil of lungs is due to *stretched elastic fibers of tracheo-bronchial tree* (1/3) and (2/3rd) is due to surface tension of film of fluid lining the inside of alveoli. That is why lungs retain their elastic recoil even after the elastic fibers have been destroyed by enzyme elastin and lungs inflated with saline have much larger compliance (i.e. are easier to inflate/distend) than air filled lungs (as saline abolishes) the surface tension).

- Surfactant, interdependence and *continuous outward pull* of chest wall prevent the alveoli from collapsing at the end of expiration. In a structure with many connecting links such as alveoli (except those immediately adjacent to pleural surface) that are surrounded and therefore supported by other alveoli, any tendency for one group of units to reduce or increase its volume relative to the rest of structure is opposed. This support is termed interdependence and is also the reason of development of low pressure around large blood vessels and airways as lung expands. So if few alveoli collapse, large expanding forces develop on them because surrounding parenchyma is expanded.

29. The thoracic duct crosses from the right to the left at the level of

a) T12 vertebra

b) T 6 vertebra

c) T5 vertebra

d) T2 vertebra

Correct Answer - C

C i.e. T5 vertebrae

Thoracic duct begins as continuation of the upper end of the cisterna chyli near the lower border of T12 vertebra and enters the thorax through the aortic opening of diaphragm (at T12).

It then ascends through the posterior mediastinum and at T5 level crosses from right side to the left side and ascends along left margin of oesophagus to enter the neck

30. Patellar plexus is formed by which artery

—

a) Descending genicular

b) Anterior tibial recurrent

c) Posterior tibial recurrent

d) All of the above

Correct Answer - D

Ans. is 'd' i.e., All of the above

Anastomosis around the knee joint. It is also called as patellar network, patellar anastomosis, genicular anastomosis or rete articulare genus.

It is divided into two parts –

- 1. Superficial plexus: Lies in superficial fascia around patella and in fat behind patella.
- 2. Deep part: Lies on femur and tibia around their adjoining articular surfaces.

It is formed by:-

A. Medial and above the condyles

- 1. Descending genicular branch of femoral artery and its saphenous branch.
- 2. Superior medial genicular.

B. Medial and below the condyles

- 1. Saphenous branch of descending genicular.
- 2. Inferior medial genicular.

C. Lateral and above the condyles

- 1. Descending branch of lateral circumflex artery.
- 2. Superior lateral genicular.

D. Lateral and below the condyles

1. Inferior lateral genicular
2. Anterior tibial recurrent
3. Posterior tibial recurrent
4. Circumflex fibular

31. Tibialis posterior originates from

a) tibia

b) Fibula

c) Interosseus membrane

d) All th above

Correct Answer - D

ORIGIN:

- The tibialis posterior muscle originates on the inner posterior borders of the tibia and fibula.
- It is also attached to the interosseous membrane, which attaches to the tibia and fibula.

INSRTION:

- The tendon of the tibialis posterior muscle (sometimes called the **posterior tibial tendon**) descends posterior to the medial malleolus and terminates by dividing into plantar, main, and recurrent components.
- The main portion inserts into the tuberosity of the navicular and the plantar surface of the medial cuneiform.
- The plantar portion inserts into the bases of the second, third and fourth metatarsals, the intermediate and lateral cuneiforms and the cuboid.
- The recurrent portion inserts into the sustentaculum tali of the calcaneus.

32. The muscle that acts primarily as an evertor of ankle inserted into the medial cuneiform is which of the following?

a) Peroneus longus

b) Peroneus brevis

c) Tibialis anterior

d) Tibialis posterior

Correct Answer - A

The peroneus longus and brevis act primarily as evertors, with the peroneus brevis being the stronger of the two. In the question, the evertor inserted to the medial cuneiform, which is peroneus longus.

The peroneus brevis inserts on the base of the fifth metatarsal and the peroneus longus courses under the cuboid to insert on the base of the first metatarsal and medial cuneiform.

The tibialis anterior is the dorsiflexor of foot at the ankle joint. It is the invertor of the foot at the midtarsal and subtalar joints.

Tibialis posterior is the principal invertor of the foot.

33. Structures passing through obturator foramen are all except -

a) Obturator nerve

b) Obturator artery

c) Obturator vein

d) Internal pudendal vessels

Correct Answer - D

Through the canal the obturator artery, obturator vein and obturator nerve pass out of the pelvis.

34. Which of the following is the most medial in the femoral triangle?

a) Lymphatics

b) Nerve

c) Artery

d) Vein

Correct Answer - A

The femoral triangle is an area in the inguinal region that is shaped like an upside-down triangle and is bordered by the sartorius muscle, adductor longus muscle and inguinal ligament. *The femoral triangle contains the following structures from lateral to medial:*

- *Femoral nerve.* Originates as a branch of the lumbar plexus. The femoral nerve is not contained within the femoral sheath.
- *Femoral artery.* Continuation of the external iliac artery. The femoral artery is located midway between the anterior superior iliac spine and the pubic symphysis.
- *Femoral vein.* Continues as the external iliac vein.
- *Lymphatics*
The inferior portion of the femoral triangle communicates with a facial canal (adductor canal) that runs deep to the sartorius muscle.

35. All of the following structures passes through lesser sciatic foramen, EXCEPT ?

a) Inferior gluteal vessels

b) Internal pudendal vessels

c) Pudendal nerve

d) Nerve to obturator internus

Correct Answer - A

Structures passing through the lesser sciatic foramen are tendon of obturator internus, internal pudendal vessels and pudendal nerve.

Structures passing through greater sciatic foramen are:

- Piriformis muscle
- **Superior and inferior gluteal vessel**
- Internal pudendal vessel
- Pudendal nerve
- Sciatic nerve
- Posterior femoral cutaneous nerve
- Nerve to obturator internus
- Quadratus femoris

Structures passing through both greater and lesser sciatic foramen:

- Pudendal nerve
- Internal pudendal vessels
- Nerve to obturator internus

36. All of the following structures pass through the greater sciatic foramen, EXCEPT?

a) Piriformis muscle

b) Pudendal nerve

c) Inferior gluteal vessel

d) Internal pudendal vessel

Correct Answer - B

Pudendal nerve courses through the lesser sciatic foramen.

Structures passing through the lesser sciatic foramen are:

- Pudendal nerve
- Internal pudendal vessels
- Obturator internus tendon

Structures passing through the greater sciatic foramen are:

- Sciatic nerve
- Piriformis muscle
- Internal pudendal and inferior gluteal vessels
- Other branches of the sacral nerve plexus

37. Structures passing through lesser sciatic foramen are all, except:

a) Pudendal nerve

b) Internal pudendal artery

c) Nerve to obturator externus

d) Tendon of obturator internus

Correct Answer - C

Structures passing through lesser sciatic foramen are **tendon of obturator internus muscle, nerve to obturator internus, pudendal nerve, internal pudendal artery and vein.**

Structures passing through greater sciatic foramen are:

- Piriformis
- Sciatic nerve
- Posterior cutaneous nerve of thigh
- Superior and inferior gluteal nerve
- Nerve to obturator internus and quadratus femoris
- Pudendal nerve
- Superior and inferior gluteal nerves and arteries
- Internal pudendal artery and vein

38. Among the following muscles, the one that is found in the first layer of the sole is?

a) Adductor hallucis

b) Flexor digitorum brevis

c) Flexor digiti minimi brevis

d) Flexor hallucis longus

Correct Answer - B

Flexor digitorum brevis, abductor hallucis and abductor digiti minimi belong to first layer of the sole. Flexor digitorum brevis lies beneath the aponeurosis, medial to it lies abductor hallucis and lateral to it lies abductor digiti minimi.

- Tendons of flexor hallucis longus, and of flexor digitorum longus, flexor digitorum accessorius, and the lumbricals forms the *second layer of the sole*.
- *Muscles which form the third layer* are flexor hallucis brevis, flexor digiti minimi brevis, and abductor hallucis.
- *Muscles forming the fourth layer of sole* are tendon of tibialis posterior, tendon of peroneus longus and interosseous muscles and long plantar ligament.

39. True about saphenous opening ?

a) Saphenous vein passes above this opening

b) Situated above and lateral to pubic tubercle

c) Covered by cribriform fascia

d) Opening in scarpa's fascia

Correct Answer - C

Ans. is 'c' i.e., Covered by cribriform fascia

Saphenous opening

- This is an oval opening in the fascia lata.
- The centre of the opening is 4 cm below and 4 cm lateral to the pubic tubercle.
- It is about 2.5 cm long and 2 cm broad with its long axis directed downwards and laterally.
- The opening has a sharp crescentic lateral margin or falciform margin which lies in front of the femoral sheath.
- The medial well define margin of the opening lies at a deeper level.
- It is formed by the fascia overlying the pectineus. The fascia passes behind the femoral sheath.
- The saphenous opening is closed by the *cribriform fascia* formed by modification of superficial fascia which covers the opening.

40. Gluteofemoral bursa is in between gluteus maximus and –

a) Greater trochanter

b) Lesser trochanter

c) Ischial tuberosity

d) Vastus lateralis

Correct Answer - D

Ans.'d' i.e., Vastus lateralis

- Ischial bursa: On lower and medial part of ischial tuberosity (between gluteus maximus and ischial tuberosity).
- Trochanteric bursa: On the greater trochanter (between gluteus maximus and greater trochanter).
- Gluteofemoral bursa: Between gluteus maximus and vastus lateralis.
- Iliopsoas bursa Between hip joint capsule and iliopsoas tendon.

41. Upper border of pubic ramus forms –

a) Pubic tubercle

b) Pubic symphysis

c) Arcuate line

d) Upper margin of obturator foramen

Correct Answer - C

Ans. is'c'i.e., Arcuate line

- Superior (upper) border of superior pubic ramus (also called pectineal line or pecten pubis) forms) Arcuate line.
- Inferior border of super pubic ramus forms > upper margin of obturator foramen

42. What is true about adductors of thigh –

a) Ischial head of adductor magnus is an adductor

b) Profunda femoris artery is the main blood supply

c) Ischial head of adductor magnus originates from adductor tubercle

d) Adductor magnus is the largest muscle

Correct Answer - D

Ans. is'd'i.e., Adductor magnus is the largest muscle

- Ischial head of adductor magnus is a hamstring muscle (not adductor).
- Ischial head of adductor magnus originates from inferolateral aspect of Ischial tuberosity (not from adductor tubercle).
- Main artery of adductor (medial) compartment of thigh is obturator artery (not profunda femoris).
- Adductor magnus is the largest muscle of the adductor compartment.

43. Anterior cruciate ligament prevents :

a) Anterior dislocation of tibia

b) Posterior dislocation of tibia

c) Anterior dislocation of femur

d) Posterior dislocation of femur

Correct Answer - A
A i.e. Anterior dislocation of tibia

44. Profunda femoris artery at its origin lies on which side of the femoral artery ?

a) Medial

b) Lateral

c) Posterior

d) Posteromedial

Correct Answer - B

Ans. is 'b' i.e., Lateral

- Profunda femoris artery arises from lateral side of femoral artery about 4 cm below the inguinal ligament.

45. Patellar plexus is formed by ?

a) Medial cutaneous nerve of thigh

b) Lateral cutaneous nerve of thigh

c) Posterior cutaneous nerve of thigh

d) Intermediate cutaneous nerve of thigh

Correct Answer - A

Ans. is 'a' i.e., Medial cutaneous nerve of thigh

- Medial cutaneous nerve of thigh joins the branches of saphenous nerve to form patellar plexus and subsartorial plexus

46. Root value of median cutaneous nerve of thigh is ?

a) L1,L2,L3

b) L2-L3

c) L3-L4

d) L4-L5

Correct Answer - B

Ans. is'b'i.e., L2-L3

- Medial femoral cutaneous nerve (medial cutaneous nerve of thigh) is a branch of anterior division of femoral nerve (L1, L2).

47.

Pudendal canal is a part of -

a) Colle's fascia

b) Obturator fascia

c) Scarpa's fascia

d) None

Correct Answer - B

Ans. is'b'i.e., Obturator fascia

- Pudendal canal (Alcock's canal) is a fascial canal in the lateral wall of ischioanal (ischio-anal) fossa.
- It is a space between obturator fascia and lunatic fascia. Other believe that it is formed by splitting of the obturator fascia.

Contents of pudendal canal are –

1. Pudendal nerve,
2. Internal pudendal artery, and
3. Internal pudendal vein.

48. Which of the following is not a support of the uterus?

a) Urogenital diaphragm

b) Pelvic diaphragm

c) Perineal body

d) Rectovaginal septum

Correct Answer - D

Ans: D. Rectovaginal septum

- Rectovaginal septum is not a support of the uterus.

Supports of the Uterus

Primary Supports

Muscular or Active support:

Pelvic diaphragm°

Perineal body°

Urogenital diaphragm°

Secondary Supports

(Formed by peritoneal Ligaments)

Broad ligament

Uterovesical fold of peritoneum

Rectovaginal fold of peritoneum

Ligamentous (Fibromuscular or Mechanical) support:

- Transverse cervical ligaments of Mackenrodt or Cardinal

Uterosacral ligament°

Round ligament of uterus°

Pubocervical ligament°

49. Fundus of gall bladder at which vertebral level

a) L1

b) L3

c) S1

d) S3

Correct Answer - A

Ans. is'a'i.e., L1

- Transpyloric plane passes anteriorly through tips of 9th costal cartilage and posteriorly through lower border of L1 vertebrae.
- Organs present at this level are hilum of kidney, pylorus of stomach, beginning of duodenum, neck of pancreas, fundus of gall bladder, and origin of superior mesenteric vessel.

50. Which is not a content of inguinal canal ?

a) Spermatic cord

b) Ilioinguinal nerve

c) Genital branch of genitofemoral nerve

d) Inferior epigastric artery

Correct Answer - D

Ans. is 'd' i.e., Inferior epigastric artery

Contents of inguinal canal

- Spermatic cord in male or round ligament of uterus in female.
- Ilioinguinal nerve : It enters through the interval between external and internal oblique muscles.
- Genital branch of genitofemoral nerve is a constituent of spermatic cord.

51. Nerve entering the inguinal canal through deep inguinal ring ?

a) Ilioinguinal nerve

b) Pudendal nerve

c) Genital branch of genitofemoral

d) Superior rectal nerve

Correct Answer - C

The spermatic cord in males and round ligament of uterus in females, enter the inguinal canal through the deep inguinal ring and pass out through superficial inguinal ring.

Thus constituents of spermatic cord are also components of inguinal canal; these are ductus deferens (vas deferens), testicular artery, cremasteric artery, artery to ductus deference, pampiniform plexus, lymphatics, sympathetic plexus, *genital branch of genitofemoral nerve*, remains of process vaginalis.

Note: Ili oiguinal nerve enters inguinal canal through interval between external and internal oblique muscles (not through deep inguinal ring).

52. Left ovarian vein drains into:

a) Common iliac vein

b) Left renal vein

c) Inferior vena cava

d) Internal iliac vein

Correct Answer - B

Ovarian vein/ Female gonadal vein

- It carries deoxygenated blood from its corresponding ovary to inferior vena cava or one of its tributaries
- It is the female equivalent of the testicular vein, and is the venous counterpart of the ovarian artery.
- It can be found in the suspensory ligament of the ovary
- It is a paired vein, each one supplying an ovary.
 - The right ovarian vein travels through the suspensory ligament of the ovary and generally joins the inferior vena cava.
 - The left ovarian vein, unlike the right, often joins the left renal vein instead of the inferior vena cava.

53. Ovarian artery is a branch of :

a) Abdominal aorta

b) Anterior iliac artery

c) Common iliac artery

d) Posterior iliac artery

Correct Answer - A
A. i.e. Abdominal aorta

54. Arterial supply to middle 1/3rd of vagina is by ?

a) Internal pudendal artery

b) Uterine artery

c) Inferior vesical artery

d) Middle rectal artery

Correct Answer - C

Ans. is 'c' i.e., Inferior vesical artery

- Arterial supply of vagina
- Vaginal branch of internal iliac (main supply)
- Cervicovaginal branch of uterine artery (in upper part).
- Middle rectal and internal pudendal arteries (in lower part).
- Inferiorvesical artery (in middle 3rd).

55. Which doesn't form the triradiate ligament of uterus?

a) Cardinal ligament

b) Ovarian ligament

c) Uterosacral ligament

d) Pubocervical ligament

Correct Answer - B

Ans. is'b'i.e., Ovarian ligament

- Triradiate ligament includes uterosacral ligament, cardinal ligament (Mackenrodt's ligament or lateral cervical ligament or transverse cervical ligament) and pubocervical ligament.

56. Urogenital diaphragm is pierced by all except -

a) Internal pudendal artery

b) Dorsal artery of penis

c) Dorsal nerve of penis

d) Urethra

Correct Answer - A

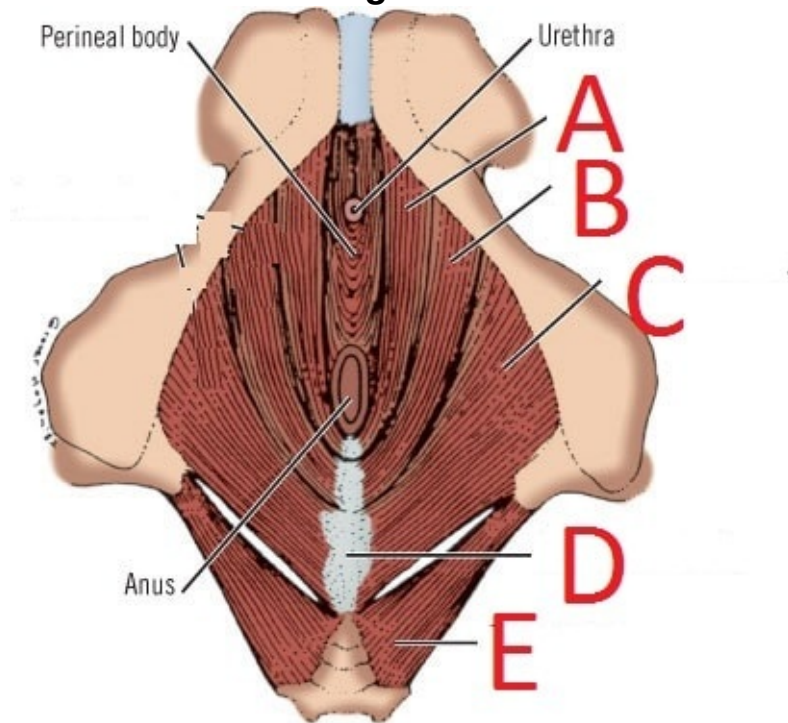
Male:

- Urethra, 2-3 cm behind the inferior border of the symphysis pubis.
- Vessels and nerves to the bulb of the penis.
- Ductus of the bulbourethral glands, posterolateral to the urethral orifice.
- Deep dorsal vessels and dorsal nerves of the penis, behind the pubic arch in the midline.
- Posterior scrotal vessels and nerves, anterior to the transverse perineal line.

Female:

- Urethra, 2-3 cm behind the inferior border of the symphysis pubis.
- Vagina, centrally
- Ducts of Bartholin's glands, posterolateral to the urethral orifice
- Deep dorsal vessels and dorsal nerves of the clitoris, behind the pubic arch in the midline.
- Posterior labial vessels and nerves, anterior to the transverse perineal line.

57. Which of the Following represents the Levator Ani muscle as shown in the diagram



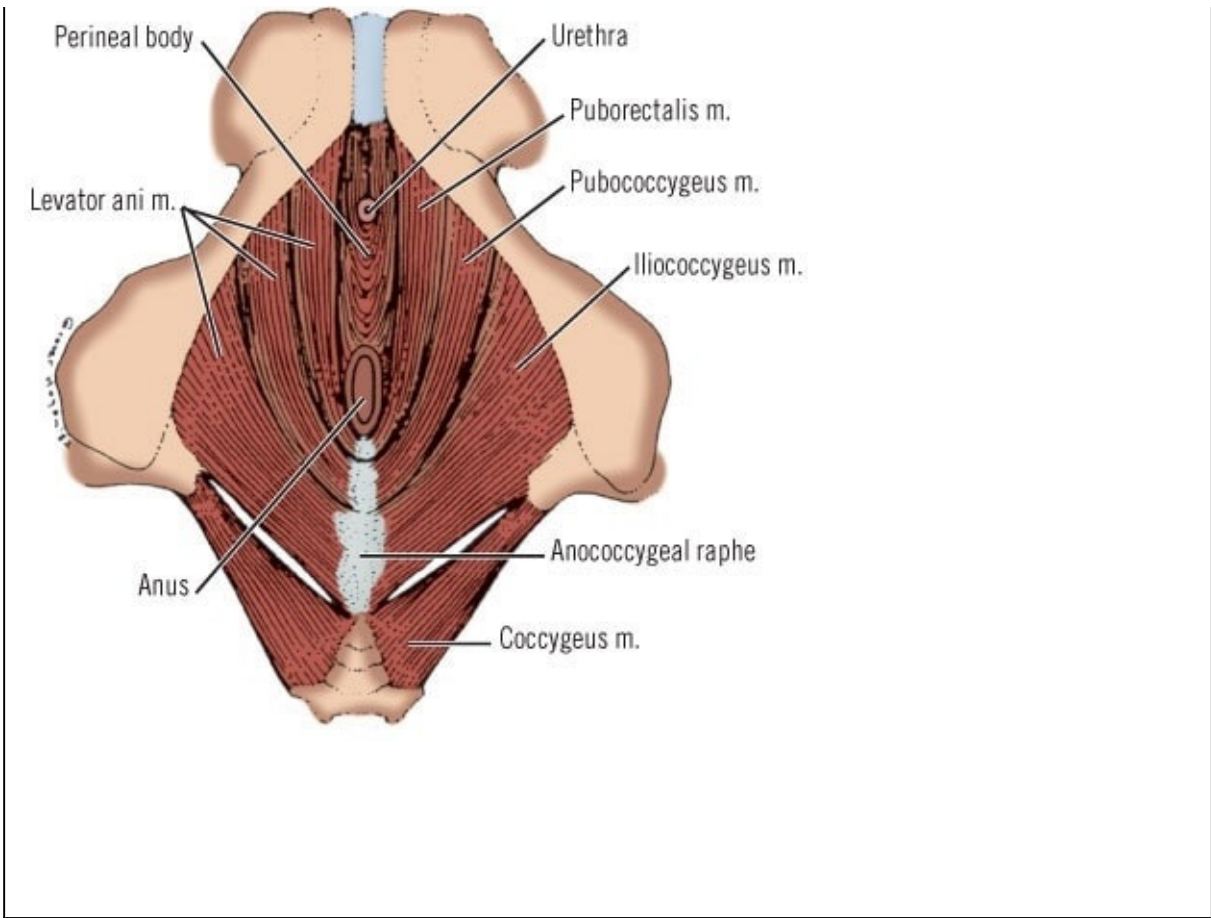
a) A + B

b) B + C

c) A + B + C

d) B + C + E

Correct Answer - C



58. Which is the direct branch of celiac trunk:

a) Rt. Gastric

b) Lt. Gastric

c) Gastroduodenal

d) Rt gastro epiploic artery

Correct Answer - B
Ans. B. i.e. Lt. Gastric

59.

Which part of brain has olivary nucleus?

a) Pons

b) Midbrain

c) Spinal cord

d) Medulla

Correct Answer - D

Ans. is'd'i.e., Medulla

- Olivary nucleus is seen in medulla oblongata.

60. All of the following cranial nerves contain Somatic Efferents, except?

a) VII Nerve (Facial nerve)

b) III Nerve (Oculomotor nerve)

c) IV Nerve (Trochlear nerve)

d) VI Nerve (Abducent nerve)

Correct Answer - A

Facial nerve does not contain Somatic Efferents.

61. Nucleus of trigeminal nerve is located in ?

a) Midbrain

b) Pons

c) Medulla

d) Cerebellum

Correct Answer - B

Ans. is'b'i.e.,Pons

- Cranial nerves I, II : Forebrain
- Cranial nerves III, IV : Midbrain
- Cranial nerves V, VI, VII, VIII : Pons
- Cranial nerves IX, X, XI, XII) Medulla

62. All of the following are true about cavernous sinus thrombosis except?

a) Most commonly spreads through ethmoid sinus

b) Loss of sensation around orbit

c) Loss of jaw jerk

d) Infection can spread to cavernous sinus from danger area of face via inferior ophthalmic vein

Correct Answer - C

Ans. c. Loss of jaw jerk

Any spreading infection involving the upper nasal cavities, paranasal sinuses, cheek (especially near the medial canthus), upper lip, anterior nares or even an upper incisor or canine tooth, may very rarely lead to septic thrombosis of the cavernous sinuses; infected thrombi pass from the facial vein or pterygoid venous complex into the sinus via either ophthalmic veins or emissary veins that enter the cranial cavity through the foramen ovale. This is a critical medical emergency with a high risk of

Cavernous Sinus Thrombosis

- Usually results from infection of ethmoid and sphenoid sinusesQ

Route of Spread

Ethmoid sinus (MC) via ophthalmic veins°	Orbit by ophthalmic veins°
Sphenoid sinus by direct spread°	Upper lid via angular vein and ophthalmic veins°
Frontal sinus via	—

supraorbital and ophthalmic veins° Ear by petrosal venous sinuses

Clinical Features:

- Onset is abrupt with fever, chills and rigor
- Involvement of 3rd, 4th, 5th and 6th cranial nerve
- Chemosis of conjunctiva^Q
- Proptosis of eye with limited movements^Q
- Pupils are dilated and fixed^Q (due to involvement of sympathetic plexus around carotid artery)
- Decreased vision^Q(due to optic nerve damage)
- Decreased sensation in distribution of 5th nerve (ophthalmic division) and engorgement of retinal vessels^Q

Treatment:

- Antibiotics in high doses for 4-6 weeks and drainage of involved sinuses^Q

63. Procerus muscle is continuation of which muscle?

a) Occipito-frontalis

b) Masseter

c) Medial pterygoid

d) Temporalis

Correct Answer - A

Ans. is'a'i.e., Occipitofrontalis

Procerus is often partially blended with, the medial side of frontal part of occipitofrontalis

64.

Which of the following is not the part of ethmoid bone?

a) Agger nasi

b) Crista galli

c) Uncinate process

d) Inferior turbinate

Correct Answer - D

Ans. d. Inferior turbinate

Inferior turbinate is not the part of ethmoid bone.

'Lateral nasal wall has 3 bony projections called as turbinates or conchae. From below upwards, they are inferior, middle and superior turbinates. The inferior turbinate is a separate bone, while rest of the turbinates are part of ethmoidal labyrinths.'

The agger nasi air cells, are the most anterior ethmoidal air cells, lying anterolateral and inferior to the frontoethmoidal recess and anterior and above the attachment of the middle turbinate. They are located within the lacrimal bone and therefore have as lateral relations the orbit, the lacrimal sac and the nasolacrimal duct.'

The crista galli is a median ridge of bone that projects from the cribriform plate of the ethmoid bone. It is where the falx cerebri attaches anteriorly to the skull. The olfactory bulbs lie on either side of the crista galli on top of the cribriform plate.'

In the ethmoid bone, a curved lamina, the uncinata process, projects downward and backward from this part of the labyrinth; it forms a small part of the medial wall of the maxillary sinus, and articulates with the ethmoidal process of the inferior nasal concha.'

65. All are associated with superior relation of uncinat process, EXCEPT:

a) Ethmoid

b) Nasal septum

c) Lamina papyracea

d) Middle turbinate

Correct Answer - B

Uncinate process:

The uncinat process is a superior extension of the lateral nasal wall (medial wall of the maxillary sinus).

It attaches, *anteriorly* to the posterior edge of the lacrimal bone, and *inferiorly* to the superior edge of the inferior turbinate.

Superior attachment of the uncinat process is highly variable, may be attached to the lamina papyracea, or the roof of the ethmoidal sinus, or sometimes to the middle turbinate.

The gap between the ethmoid bulla and the free edge of the uncinat process is the **hiatus semilunaris**.

66.

CSF Rhinorrhea is usually due to fracture of cribriform plate. Cribriform plate is a part of:

a) Vomer

b) Ethmoid

c) Maxilla

d) Zygomatic bone

Correct Answer - B
Ethmoid

67.

Thinnest bone is a part of which bone -

a) Frontal

b) Ethmoid

c) Sphenoid

d) Temporal

Correct Answer - D

Ans is 'd'i.e., Temporal

- Squamous part of temporal bone is the thinnest part of the skull (excluding orbital shelf)

68. Submandibular gland is divided into superficial and deep parts by ?

a) Digastric

b) Geniohyoid

c) Mylohyoid

d) Stylohyoid

Correct Answer - C

Submandibular gland

- This walnut sized gland lies below the mandible in the anterior part of digastric triangle. It is *.1-shaped* and consists of a large superficial and a small deep parts, separated by mylohyoid muscle and continuous with each other around the posterior border of mylohyoid muscle.

Superficial part

- It is situated in the anterior part of digastric triangle. The gland is partially closed in a capsule formed by two layers of deep cervical fascia. It has three surfaces : (i) inferior, (ii) lateral, and (iii) medial.
 - i) Inferior surface* is covered by skin, platysma, cervical branch of facial nerve, deep fascia, facial vein and submandibular lymph nodes.
 - ii) Lateral surface* is related to submandibular fossa (on mandible), medial pterygoid (insertion) and facial artery.
 - iii) Medial surface* is related to mylohyoid, hyoglossus and styloglossus muscles.

Deep part

- It lies on the hyoglossus muscle deep to mylohyoid. It is related above to lingual nerve and submandibular ganglion; and below to hypoglossal nerve.



69. Number of parathyroid glands in human:
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a) 4

b) 3

c) 2

d) 5

Correct Answer - A

- The parathyroid glands are ovoid bodies measuring about 6 mm long in their greatest diameter.
- They are four in number and are closely related to the posterior border of the thyroid gland, lying within its fascial capsule.
- The two superior parathyroid glands are the more constant in position and lie at the level of the middle of the posterior border of the thyroid gland.
- The two inferior parathyroid glands usually lie close to the inferior poles of the thyroid gland. They may lie within the fascial sheath, embedded in the thyroid substance, or outside the fascial sheath

70. Inferior thyroid artery is a branch of?

- a) Thyrocervical trunk
- b) External carotid artery
- c) Internal carotid artery
- d) None of the above

Correct Answer - A

Thyrocervical trunk gives three branches (SIT):

S-Suprascapular artery

I- Inferior thyroid artery

T-Transverse cervical artery

71. All are true about esophagus except ?

a) Lined by stratified squamous epithelium

b) Mucosa is thick

c) Middle third contains both skeletal and smooth muscles

d) Lower third contains only skeletal muscle

Correct Answer - D

Ans. is 'd' i.e., Lower third contains only skeletal muscle

Important features of esophagus

- Epithelium is stratified squamous non-keratinized epithelium.
- Muscularis mucosa contains only longitudinal layer and no circular layer.
- Mucosa is the toughest and strongest layer.
- Serosa is absent.
- Muscularis externa is made up of skeletal muscle fibers only in the upper third, smooth muscles only in the lower third and both types of muscle fibers in middle third. At upper end the longitudinal coat splits into two bundles and the triangular interval between them is called Laimer's tringle which is filled with circular muscle fibers.

72. Extraperitoneal fat is located?

a) Beneath fascia transversalis

b) Above campers fascia

c) Anterior to abdominal muscles

d) Under parietal peritoneal

Correct Answer - A

Ans. is'a'i.e., Beneath fascia transversalis

- The extra Peritoneal fat is a thin layer of connective tissue that contains a variable amount of fat and lies between the fascia transversalis and the parietal peritoneum.

73. What is the function of chordae tendineae?

a) Opens A-V valve

b) Prevents regurgitation

c) Helps contraction of papillary muscles

d) Passes action potential to papillary muscles

Correct Answer - B

Ans. is 'b' Prevents regurgitation

- The **chordae tendineae** are a group of tough, tendinous strands in the heart.
- They are commonly referred to as the “heart strings” since they resemble small pieces of string.
- Functionally, the **chordae tendineae** play a vital **role** in holding the atrioventricular valves in place while the heart is pumping blood.
- Papillary muscles contract to tighten the chordae tendineae preventing the cusps of the valves from being everted into the atrium by pressure developed by pumping action of the heart.
- This prevents regurgitation of the ventricular blood into the atrium.

74. Outer border of pubic crest forms which structure?

a) Pubic tubercle

b) Pectin pubis

c) Anterior superior iliac spine

d) Linea terminalis

Correct Answer - A

Ans. is 'a' i.e., Pubic tubercle

- Pubic crest ends laterally in pubic tubercle

75. At hilum of lung, what enters ?

a) Primary/Principal bronchus

b) Secondary bronchus

c) Tertiary bronchus

d) Bronchiole

Correct Answer - A

The root (hilum) of lung is made up of following structures :?

1. Principal bronchus on the left side, and eparterial and hyarterial bronchi on the right side.
2. One pulmonary artery.
3. Two pulmonary veins, superior and inferior.
4. Bronchial arteries, one on the right side and two on the left side.
5. Bronchial veins.
6. Anterior and posterior pulmonary plexuses of nerves.
7. Lymphatics of the lung.
8. Bronchopulmonary lymph nodes.
9. Areolar tissue.

76. Term period for embryonic period:
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a) 0-14 days of gestation

b) 14 days to 9 weeks of gestation

c) 9 weeks to birth

d) 22 weeks intrauterine to 7 days after birth

Correct Answer - B

Ans. B: 14 days to 9 weeks of gestation

The embryonic period in humans begins at fertilization (12-24hrs after ovulation, generally between the 2nd and 3rd week of gestational age) and continues until the end of the 9th week of gestation (8th week by embryonic age).

77. Tongue muscles are derived from

a) Lateral plate mesoderm

b) Occipital myotome

c) Intermediate mesoderm

d) Cervical myotome

Correct Answer - B

Ans: B Occipital myotome

(Ref: BDC 6th/eVol. III p. 269-270)

Development of the tongue:-

I. Epithelium:

- Ant 2/3 -- lingual swellings of 1st arch and tuberculum impar.
- Post 1/3 -- large dorsal part of hypobranchial eminence, i.e, 3rd arch.
- Posterior most part -- small dorsal part of the hypobranchial eminence, i.e. 4th arch.

II. Muscles:

- **From occipital myotomes except palatoglossus which is derived from the 6th arch.**

78. Not true about right atrium ?

a) Posterior part is smooth

b) Anterior part is derived from absorption of right horn of sinus venosus

c) Fossa ovalis represents remnant of foramen ovale

d) Anterior and posterior parts are divided by Crista terminalis

Correct Answer - B

Ans. is 'b' i.e., Anterior part is derived from absorption of right horn of sinus venosus

Sinus venarum (posterior part of right atrium) is derived from absorption of right horn of sinus venosus (not anterior part).

Right atrium

It has *thinnest walls* of the four chambers. It is divided by crista terminalis into two parts :-

i) Rough anterior part or atrium proper (pectinate part), including auricle.

It is *derived from right half of primitive atrial chamber*. There is a series of transverse muscular ridges called *musculi pectinate* which are attached to crista terminalis and gives appearance like "*teeth of a comb*". SA node is situated in the upper part of crista terminalis. Auricle lies in the superomedial portion.

ii) Posterior smooth part or sinus venosum.

It is derived from *absorption of right horn of sinus venosus*. It has openings of :-

1) *Superior vena cava* :- Has no valve.

2) *Inferior vena cava* :- Orifice is guarded by a rudimentary valve of IVC (*Eustachian valve*) derived from embryonic right venous valve, which directs the blood from IVC towards *foramen ovale* in fetal life.

This valve is nonfunctional in adults.

3) *Coronary sinus* :- Orifice lies between tricuspid orifice and IVC orifice. It is guarded by a functional semilunar valve (thebesian valve). Thebesian valve develops from right venous valve.

4) *Venae cardis minimae (thebesian veins)*:- Open through foramina venorum minimarum.

5) *Anterior cardiac vein*

6) *Right marginal vein* :- Sometimes it may open into coronary sinus (not in right atrium).

iii) Interatrial septal region

Interatrial septum develops from approximation of embryonic septum primum and septum secundum. Features on right atrial side are :

1) *Fossa ovalis* :- Oval shaped depression lying above the level of IVC opening in the interatrial septum. It is the embryologic remnant of foramen ovale, which connects right atrium to left atrium in embryonic life. Floor of the fossa ovalis is formed by septum primum.

2) *Limbus fossa ovalis (Annulus ovalis)* :- It is thickened rim present above the fossa ovalis. It represents the lower free margin of septum secundum.

3) *Triangle of Koch* :- It is a triangular region in the lower part of interatrial septum which contains AV node. It is bounded above by tendon of Todaro below by base of septal leaflet of tricuspid valve and anteriorly (base) by orifices of coronary sinus.

Immediately above the membranous septum, the septal region shows a slight bulge known as torus aorticus, produced by right posterior (non-coronary) aortic sinus (of valsalva).

79. Which of the following laryngeal muscle arise 4th arch

a) Cricothyroid

b) Transverse arytenoids

c) Posterior cricoarytenoid

d) Lateral arytenoids

Correct Answer - A

Ans. is 'a' i.e., Cricothyroid

- All intrinsic muscles of larynx are derived from 6th arch except cricothyroid which arises from 4th arch

80. The epiphysis at the tip of coracoid process is an example of which of the following type of epiphysis?

a) Traction

b) Atavistic

c) Pressure

d) A or C

Correct Answer - B

Coracoid process is shaped like a bent finger. It is an example of atavistic epiphysis. Atavistic epiphysis are formed by centers of ossification which are considered to represent the skeletal elements which were separated in some earlier evolutionary phases but later found to remain fused with adjacent bones.

Other types of epiphysis are:

- **Pressure epiphysis:** It helps in transmitting body weight and also protects epiphyseal cartilage. eg. head of femur and head of humerus
- **Traction epiphysis:** It is caused by pull of muscle. eg: trochanter of femur, tuberosities of humerus.
- **Aberrant epiphysis:** Presence of an occasional separate epiphysis in a bone. eg. In the first metacarpal, normal epiphysis is seen at the base, but it may have another one at the head.

81. Ameloblasts produce:

a) Cementum

b) Dentin

c) Enamel

d) None of the above

Correct Answer - C

In the meantime, epithelial cells of the inner dental epithelium differentiate into ameloblasts (enamel formers). These cells produce long enamel prisms that are deposited over the dentin

- Ameloblasts form enamel (the hardest component of teeth) and are derived from surface ectoderm.
- Odontoblasts form dentine and are derived from neuroectoderm (from neural crest).

82.

Hardest calcified part of tooth:
JIPMER 13

a) Enamel

b) Dentin

c) Cementum

d) Pulp

Correct Answer - A
Ans. Enamel

83. Maxillary sinus epithelium is made of ?

a) Pseudostratified columnar

b) Ciliated columnar

c) Simple columnar

d) Stratified squamous non-keratinized

Correct Answer - B

Ans. is'b'i.e., Ciliated columnar

- Lining epithelium of paranasal sinuses is ciliated columnar with goblet cells.

84. During first 3-4 month of gestation erythrocytes are formed by

a) Yolk sac

b) Liver

c) Spleen

d) All

Correct Answer - D

A i.e. Yolk sac; B i.e. Liver; C i.e. Spleen

Erythropoiesis (blood production) occurs in mesodermal wall of yolk sac(i.e. intravascular) from 3 weeks to 3 months of gestation and in liver > spleen & lymph nodes(hepatic extramedullary) from 2 months to 7 months of gestation. After this erythropoiesis occurs in marrow (myeloid tissue).

85. Which one of the following is the description used for the term allodynia during pain management?

a) Absence of pain perception

b) Complete lack of pain sensation

c) Unpleasant sensation with or without a stimulus

d) Perception of an ordinarily non-noxious stimulus as severe pain

Correct Answer - D

D i.e. Perception of an ordinarily non-noxious stimulus as severe pain

86. Non-noxious stimulus is perceived as pain in:

a) Allodynia

b) Hyperalgesia

c) Paraesthesia

d) Hyperpathia

Correct Answer - A

Allodynia refers to production of pain by non noxious stimuli. Its a phenomenon characterised by painful sensations provoked by non-noxious stimuli, (e.g. touch), transmitted by fast- conducting nerve fibres. **Hyperalgesia** is a exaggerated pain response produced to a noxious stimuli. **Hyperpathia** is a painful syndrome characterized by an abnormally painful reaction to a stimulus, as well as an increased threshold. **Paresthesias** are abnormal sensations of pins and needles or tingling caused by normally non noxious events.

Mechanism: changes of the response characteristics of second - order spinal neurons so that normally inactive or weak synaptic contact mediating non-noxious stimuli acquire the capability to activate a neuron that normally responds only to impulses signaling pain.

Ref: Harrison's, Principles of internal medicine, 17th Edition, Page 54, 2581

87. The only excitatory neurons in cerebellar cortex are?

a) Purkinje

b) Basket

c) Golgi

d) Granule cells

Correct Answer - D

Ans. is'd'i.e., Granule cells [Ref BDC Vol. 3 p 92)

- Purkinje cells are the only output cells from cerebellar cortex.
- Purkinje cells send inhibitory efferents to deep cerebellar nuclei.
- Basket cells inhibit body of purkinje cells while stellate cells inhibit dendrites of purkinje cells.
- Granule cells send facilitatory efferents to basket, stellate and purkinje cells through parallel fibers.
- Climbing fibers and parallel fibers stimulate purkinje cells.

88. True about cerebellar neuronal connections ?

- a) Climbing fibres from inferior olivary nucleus
- b) Mossy fibres from inferior olivary nucleus
- c) Climbing fibres are inhibitory to Purkinje cells
- d) Mossy fibres are inhibitory to Purkinje cells

Correct Answer - A

Ans. is 'a' i.e., Climbing fibres from inferior olivary nucleus

Neuronal circuit in cerebellum

Afferent for cerebellum comes through two fibers : climbing fibers and Mossy fibers. *Climbing fibers* which brings information only from the inferior olivary nuclei and establish excitatory synapses with Purkinje cells. All other afferent input to the cerebellum is brought by the other types of fibers, called Mossy fibers which establish *excitatory synapse with granule cells* in the granular cell layer. The axon of granule cells, called *parallel fibers*, stimulate the Purkinje cells. Thus mossy fibers, like the climbing fibers, also end up in stimulating the Purkinje cells.

Granule cells are the only stimulatory (excitatory) cells in cerebellar cortex.

The *parallel fibers (axons of granule cells)* also stimulate three types of interneurons :- *Stellate and basket cells in the molecular layer*, and *Golgi cells in the granular layer*. Stellate and basket cells inhibit Purkinje cells. Golgi cells, also activated by collateral from mossy fibers (besides parallel fibers), inhibit transmission from mossy fibers to granule cells.

Overall, *climbing fiber inputs exert a strong excitatory effect on a single Purkinje cell, Whereas mossy fiber inputs exert a weak*

excitatory effect on many purkinje cells via the granule cells.

After complex inhibiting and excitatory interactions of various fibers and cells in the cortex, the output of cerebellar cortex, is projected to deep cerebellar nuclei by axons of pyramidal cells (only output cells of cerebellar cortex). The output of the Purkinje cells is inhibitory to the deep cerebellar nuclei. However, the output of deep cerebellar nuclei to the brain stem and thalamus is always excitatory because, beside inhibitory inputs of purkinje cells, deep cerebellar nuclei also receive excitatory inputs from afferent mossy and climbing fibers which usually are more prominent.

89. A cut /lesion above the pyramidal tract decussation results in:
September 2007

a) Paralysis of the opposite half of the body

b) Contralateral loss of proprioception

c) Ipsilateral loss of pain and temperature

d) Contralateral loss of vibration and joint position

Correct Answer - A

Ans. A: Paralysis of the opposite half of the body

The Pyramidal Tract/corticospinal tract is group of fibers carries messages for voluntary motor movement to the lower motor neurons in the brain stem and spinal cord.

Approximately 80% of the cell bodies of the pyramidal tract are located on the precentral gyrus of the frontal lobe (the motor strip). Approximately 20% of the pyramidal tract fibers also originate in the postcentral gyrus of the parietal lobe, in Brodmann's areas 1, 2, and 3. Regardless of the location of their cell bodies, pyramidal tract fibers begin their descent from the cortex as a corona radiata (radiating crown) before forming the internal capsule.

This tract is direct and monosynaptic which allows messages to be transmitted very rapidly from the central nervous system to the periphery.

The fibers of the pyramidal tract that synapse with spinal nerves sending information about voluntary movement to the skeletal muscles form the cortico-spinal tract. As they descend through the brain, they form part of the posterior limb of the internal capsule. At the pyramids in the inferior part of the medulla, eighty-five to ninety percent of cortico-spinal fibers decussate, or cross to the

Twenty percent of cortico-spinal fibers decussate, or cross to the other side of the brain. The remaining ten to fifteen percent continue to descend ipsilaterally. The fibers that decussate are called the lateral cortico-spinal tract or the lateral pyramidal tract. Because they descend along the sides of the spinal cord, the uncrossed or direct fibers that synapse with spinal nerves on the ipsilateral side of the body are called the direct pyramidal tract. They may also be referred to as the ventral pyramidal tract or the anterior cortico-spinal tract since they travel down the ventral aspect of the spinal cord.

The spinal nerves receive only contralateral innervation from the cortico-spinal tract. This means that unilateral pyramidal tract lesions above the point of decussation in the pyramids will cause paralysis of the muscles served by the spinal nerves on the opposite side of the body. For example, a lesion on the left pyramidal tract above the point of decussation could cause paralysis on the right side of the body.

90. Which about Vestibular neuroma is not correct?

a) Nystagmus

b) High frequency sensorineural deafness

c) Absence of caloric response

d) Normal corneal reflex

Correct Answer - D

91. Features of occipital lobe of brain *are all except:*
March 2008

a) Visual cortex lies in relation to calcarine fissure

b) Brodmann's area 17 corresponds to visual cortex

c) Geniculocalcarine fibres from the medial half of the lateral geniculate terminate on the superior lip of the calcarine fissure

d) Its the only area in the brain activated by visual stimuli

Correct Answer - D

Ans. D: Its the only area in the brain activated by visual stimuli

92. Synaptic transmission between pain fibers from the skin and spinal cord neurons is mediated by:

a) Acetylcholine

b) Substance P

c) Endorphins

d) Somatostatin

Correct Answer - B

Substance P is found in neurons within the hypothalamus and spinal cord. It is released from small A delta and C fibers that relay information from nociceptors to neurons within the substantia gelatinosa of the spinal cord. Endorphins and other opioid neurotransmitters may partially inhibit the perception of pain by presynaptically inhibiting the release of substance P from nociceptor afferent fibers.

93. Which of the following is an inhibitory neurotransmitter found exclusively in the central nervous system?

a) Acetylcholine

b) Glutamate

c) Norepinephrine

d) Serotonin

Correct Answer - D

Serotonin (5-hydroxytryptamine) is an important regulatory amine in the CNS. **Serotonin**-containing neurons are present in the raphe nuclei in the pons and medulla.

Serotonin is a generally inhibitory monoamine type neurotransmitter found in the CNS.

Acetylcholine can be excitatory or inhibitory and is found in the CNS, neuromuscular junction, and many autonomic nervous system (ANS) synapses. Glutamate is found in the brain and spinal cord and is excitatory.

Norepinephrine, such as serotonin, is a monoamine neurotransmitter but can be excitatory or inhibitory found in the CNS, sympathetic ANS synapses, and nearly all tissues.

Ref: Katzung B.G. (2012). Chapter 16. Histamine, Serotonin, & the Ergot Alkaloids. In B.G. Katzung, S.B. Masters, A.J. Trevor (Eds), *Basic & Clinical Pharmacology*, 12e.

94. Which of the following statements is true about the autonomic nervous system?

- a) The sympathetic outflow from the CNS is through both the cranial nerves and the sympathetic chain
- b) The parasympathetic outflow from the CNS is through cranial nerves only.
- c) The superior hypogastric plexus is located at the anterior aspect of the aortic bifurcation and fifth lumbar vertebra
- d) The superior hypogastric plexus contains sympathetic fibres only.

Correct Answer - C

C i.e. The superior hypogastric plexus is located at the anterior aspect of aortic bifurcation and fifth lumbar vertebra.

95. Temporal lobectomy in monkey leads to ?

a) Hypersensitivity

b) Aggressive behavior

c) Hypersexuality

d) None

Correct Answer - C

Ans. is 'c' i.e., Hypersexuality

Kluver-Bucy syndrome

Kluver-Bucy syndrome is a neuro-behavioural syndrome associated with bilateral lesions in the anterior temporal horn or amygdala.

Heinrich Kluver and Paul Bucy first described the syndrome in 1937 after experimental work where they removed rhesus monkey's temporal lobes. They found that the monkeys developed.

1) *Visual agnosia* : they could see, but were unable to recognise familiar objects or their use.

2) *Oral tendencies* : they would examine their surroundings with their mouths instead of their eyes.

3) *Hypermetamorphosis* : a desire to explore everything.

4) *Emotional changes* : emotion was dulled and facial movements and vocalisations were far less expressive. They lost fear where it would normally occur. Even after being attacked by a snake, they would casually approach it again. This was called "placidity".

5) *Hypersexuality* : a dramatic increase in overt sexual behaviour, including masturbation, and homosexual and heterosexual acts.

They may even attempt copulation with inanimate objects.

The syndrome in humans is due to bilateral destruction of the amygdaloid body and inferior temporal cortex, most commonly due to herpes simplex encephalitis (HSE). It shares visual agnosia and loss of normal fear and anger responses in common with the

loss of normal fear and anger responses in common with the monkey model but one also seen loss of memory with dementia, distractibility and seizures. The hypersexuality tends to be less overt than in the monkeys but may be public and unacceptable.

96. When stereocilia of an auditory hair cell are deflected in the appropriate direction, potassium channels open in the apical membrane of the cell and?

a) Potassium ions flow out of the cell, hyperpolarizing the cell

b) Potassium ions flow out of the cell, depolarizing the cell

c) Potassium ions flow into the cell, hyperpolarizing the cell

d) Potassium ions flow into the cell, depolarizing the cell

Correct Answer - D

The opening of potassium channels in the apical membrane of auditory hair cells allows potassium ions to flow into the cell and depolarize the cell. The apical surface of these cells is exposed to endolymph, which contains potassium ions at a much greater concentration than is found inside the cell.

A potential difference of 160 mV (outside positive) exists across the apical membrane, and this results in a net movement of potassium ions into the cell when the stereocilia bundle is deflected and ion transduction channels are opened. The membrane potential of the hair cell moves in the positive direction (toward zero) and this results in depolarization of the cell.

97. Which are the cells of olfactory bulb that act as local integrator?

a) Sustentacular cells

b) Hair cells

c) Granular cells

d) Mitral cells

Correct Answer - D

Ans. is 'd' i.e., Mitral cells[Rel Ganong 23'd/e ch 15, Guyton 12th/e p. 649]

- In olfactory bulb axons of olfactory nerve synapse with dendrites of mitral cells to form the olfactory glomeruli.
- Mitral cells are the principal output neurons of olfactory bulb and their axons form the olfactory tract

98. Odorant molecule binds to which receptors?

a) cAMP

b) G protein coupled membrane receptors

c) JAK kinase pathway

d) NF receptors

Correct Answer - B

Ans. is 'b' i.e., G protein coupled membrane receptors

[Rel Ganong 23'd/e ch 15; Guyton 12h/e p. 649)

- Odour receptors are G-protein coupled receptors.
- Receptor-ligand interaction (adsorption of odorant molecules to the cilia of receptors) results in opening of Na⁺ channel through second messenger cAMP.
- Opening of Na⁺ channels result in Na⁺ influx and generation of action potentials.

99. Temperature centre is ?

a) Supraoptic nucleus of hypothalamus

b) Paraventricular nucleus of hypothalamus

c) Preoptic nucleus of hypothalamus

d) Suprachiasmatic nucleus of hypothalamus

Correct Answer - C

Ans. is'c'i.e., Preoptic nucleus of hypothalamus [Ry' Ganong
23'd/e p. 275)

100.

Part of Basal ganglia, primarily involved in parkinsonism?

a) Subthalamic nucleus

b) Substantia nigra

c) Globus pallidus

d) None

Correct Answer - B

Ans. is 'b' i.e., Substantia nigra [Rel Principles of medical physiology p. 189]

101. There are two electrodes placed at a distance of 4.5cm and it takes 1.5ms for current to be propagated along the nerve from one to another electrode. The velocity of nerve conduction is ?

a) 60m/s

b) 30m/s

c) 45m/s

d) 80m/s

Correct Answer - B

Ans. is'b'i.e., 30m/s [Ry' Requires no reference]

- Velocity = Distance traveled / Time taken to travel distance = 4.5 cm / 1.5 ms = 3 cm/ms = 30 m/sec

102. Voltage gated sodium channels are?

a) Multimeric

b) Pentameric

c) Heterotrimer

d) Monomeric

Correct Answer - C

Ans. is 'c' i.e., Heterotrimer | Ref: Principles of medical physiology
p. 24

- There are two different types of Sodium channels:-
1) Voltage-gated sodium channel:
 - These Are Present in Excitable cells.
 - These exist as heterodimers or heterotrimers of alpha and beta subunits, containing one alpha and one or two beta subunits.
- **2) Epithelial sodium channels:**
 - These are present in the epithelium of absorptive or secretory epithelium,
 - e.g. colon, sweat gland duct, pancreatic duct, respiratory passage, and distal tubule of kidney.
 - These exist as heterotetramers of alpha, beta and gamma subunits, containing mostly two alpha, one beta and one gamma subunits.

103. All are true about neurotrophins except ?

a) Help integrity of postsynaptic neurons

b) TrK B is associated with brain derived neurotrophic factor

c) Helps in growth of cholinergic neurons in basal forebrain

d) Always transported antegrade along the axon

Correct Answer - D

Ans. is 'd' i.e., Always transported antegrade along the axon [Ref Ganong 24n/e p. 93; R.K. Marya 3d/e p. 236]

Neurotrophins

- This name is given to a group of proteins necessary for the survival and growth of neurons.
- Some of them are synthesized by extraneuronal structures innervated by the neurons, e.g. skeletal muscle innervated by alpha-motor neurons and tissue innervated by autonomic neurons.
- Many are produced by astrocytes.
- From the non-neural tissues, neurotrophins are taken up by endocytosis at the nerve terminal and transported to the soma by axonal retrograde transport mechanism.

104. Righting reflex is a ?

a) Cochlear reflex

b) Spinal reflex

c) Vestibular reflex

d) None of the above

Correct Answer - C

Ans. is 'c' i.e., Vestibular reflex

[Ref Understanding of medical physiology p. 662]

Vestibular reflexes

- The information collected by vestibular apparatus leads mainly to reflex adjustment in posture and eye movements.

Vestibular reflexes are -

- Tonic labyrinthine reflex
- Righting reflex (labyrinthine righting reflex)
- Visual reflex vestibulo-ocular reFlex)

105. Rate limiting step in cholinergic transmission ?

- a) Synthesis of acetylcholine from choline
- b) Active uptake of choline in axons
- c) Active uptake of acetylcholine by synaptic vesicle
- d) Release of acetylcholine from synaptic vesicle

Correct Answer - B

Ans. is'b'i.e., Active uptake of choline in axons

- Acetylcholine synthesis and release
- Choline is actively taken up by the axonal membrane by Na^+ ; choline cotransporter. (Rate limiting step). This step is blocked by Hemicholinium.

106. Biphasic action potential of mixed nerve except?

a) All or none phenomenon

b) Two or more positive peaks

c) Refractory period

d) Recorded on surface

Correct Answer - B

Ans. is'b'i.e., Two or more positive peaks

- Action potential when recorded by putting two electrodes on the surface of a neuron (instead of putting one on surface and one intracellularly), shows a biphasic response, i.e. Biphasic action potential.
- As the wave of depolarization reached the first electrode, this electrode becomes negative and an upward deflection (Peak) is recorded.

107. The frequency of beta waves (per sec) in EEG is

a) 0-4

b) 4-7

c) 7-13

d) 13-30

Correct Answer - D
D i.e. 13-30

108. Myosin and actin filaments are kept in place by ?

a) Tropomyosin

b) Troponin

c) Actinin

d) Titin

Correct Answer - D

Ans. is 'd' i.e., Titin

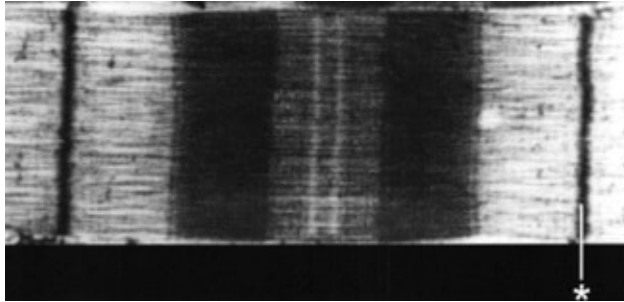
- The side-by-side relationship between the myosin and actin filaments is difficult to maintain.
- This is achieved by a large number of filamentous molecules of a protein called titin.
- *Titin molecules act as a framework that holds the myosin and actin filaments in place* so that the contractile machinery of the sarcomere will work.

Important muscle proteins

1. Myosin :- Myosin is the protein that constitutes the *thick filaments*. Myosin of skeletal muscle is *myosin-II*. Myosin participates in the contractile mechanism and also acts as an ATPase.
2. Actin :- Actin is the major protein of *thin filament*. It is the actin which slides over myosin during contraction.
3. Tropomyosin : - It is the other protein of *thin filament*. It covers the active sites (myosin binding sites) on actin. When Ca^{+2} concentration of cytoplasm (sarcoplasm) is raised, it uncovers the active sites of actin and allow the contraction. So, the '*cross-bridge cycling*' is switched off or on by the tropomyosin molecule which slides on the actin molecule to cover or uncover the active sites on

it.

109. The Below Image shows a sarcomere. Identify the accessory protein marked with * in the diagram below-



a) Nebulin

b) Alpha actinin

c) Titin

d) Tropomyosin

Correct Answer - B

Answer- B. Alpha actinin

- The protein marked in the diagram is linking Z-line and actin, is called as actinin. Titin anchors thick filament (myosin) to actin, while nebulin and tropomyosin (or tropomodulin) are parts of thin filament (actin).
- It is a microfilament protein of spectrin gene superfamily
- Alpha-Actinin is necessary for the attachment of actin filaments to the Z-lines in skeletal muscle cells, and to the dense bodies in smooth muscle cells.
- The functional protein is an anti-parallel dimer, which cross-links the thin filaments in adjacent sarcomeres, & coordinates contractions between sarcomeres in the horizontal axis.
- In non-muscle cells, the cytoskeletal isoform is found along

microfilament bundles & adherens-type junctions, where it is involved in binding actin to the membrane.

110. True about carbohydrate absorption?

a) Glucose absorption occurs independent of sodium

b) Fructose absorption occurs dependent on Na

c) Fructose absorption occurs via SGLT 1

d) Fructose absorption is not by secondary active transport

Correct Answer - D

Ans. is 'd' i.e., Fructose absorption is not by secondary active transport

Glucose absorption

- Fructose absorption along the apical side is by GLUT 5 transporter.
- GLUT 5 transporter is an example of facilitated passive diffusion
- Fructose absorption along the basolateral side is by GLUT 5 transporter or through GLUT 2 transporter
- Thus Fructose absorption along both apical side and basolateral side is by facilitated passive diffusion.

111.

Transection at mid pons level results in?

a) Hyperventilation

b) Apneusis

c) Rapid and shallow breathing

d) Hypoxia

Correct Answer - B
B i.e. Apneusis

112. Fetal erythropoietin production is inhibited by?

a) Testosterone

b) Estrogen

c) Cortisol

d) Hypoxia

Correct Answer - B

Ans. is 'b' i.e., Estrogen

- Ref: Principles and practice of maternal health
- The plasma erythropoietin activity increases steadily during pregnancy.
- Estrogen antagonizes the erythropoietin-augmenting effect of placental lactogen.
- It inhibits utilization of erythropoietin by the marrow stem cells, and also impairs its production.

113. Lowest threshold potential in a motor nerve fibre is at:

a) Dendrite

b) Body

c) Axon hillock

d) Axon

Correct Answer - C
C i.e. Axon hillock

114. During the Repolarisation phase of Action Potential of a Neuron, which among the following takes place?

a) Increased permeability to K⁺ ion

b) Decreased permeability to K⁺ ion

c) Increased permeability to Ca²⁺ ion

d) Increased permeability to Na⁺ ion

Correct Answer - A

Increased Permeability to K⁺ ion

REF: See previous question for explanation

115. Pure word aphasia is inability to?

a) Read

b) Write

c) Comprehend

d) Speak

Correct Answer - C

Ans.is'c'i.e.,Comprehend

- Auditoryverbal agnosia (AVA), also known as pure word deafness, is the inability to comprehend speech.
- Individuals with this disorder lose the ability to understand language repeat words, and write from dictation.

116. Sensory organ for responding to texture is:

September 2009

a) Meissner corpuscles

b) Merkel cells

c) Ruffini corpuscles

d) Pacinian corpuscles

Correct Answer - A

Ans. A: Meissner corpuscles

Sensory organs and their responses:

- Meissner corpuscles-Responds to changes in texture and slow vibrations
- Merkel cells-responds to sustained pressure and touch
- Ruffini corpuscles-respond to sustained pressure
- Pacinian corpuscles-respond to deep pressure and fast vibration

117. Muscle tone is maintained by ?

a) Golgi tendon organ

b) Renshaw cells

c) Muscle spindle

d) None of the above

Correct Answer - C

Ans. is 'c' i.e., Muscle spindle

- Sensory receptors (stretch receptors) for stretch reflex are muscle spindles.
- Stretch reflex has two principal functions :
 - 1) *To maintain muscle tone*
- Tone is a tendency of a muscle to resist being stretched.
- Muscle tone is not only important for maintaining posture but also facilitates locomotion and makes all voluntary movement smooth.
- 2) *To make muscles respond to stretch and release*
- Stretch reflex makes a muscle respond to stretch by contraction and to release by relaxation.
- both these responses, which oppose the triggering stimulus, help make voluntary movement smooth and graceful.

118. Rennin is present in ?

a) Gastric juice

b) Liver

c) Kidney

d) Lung

Correct Answer - A

Ans. is 'a' i.e., Gastric juice

[Ref: Principles of Medical physiology p. 786

- Rennin (also called chymosin) is a proteolytic enzyme found in gastric juice. It is synthesized by chief cells in the stomach.

119. Normal intracranial pressure in a child is ?

a) 30-70 mm of H₂O

b) 50-80 mm of H₂O

c) 100-150 mm of H₂O

d) 50-150 mm of H₂O

Correct Answer - B

Ans. is 'b' i.e., 50-80 mm of H₂O

CSF finding

Pressure	-	50-80 mm of H ₂ O
Leucocyte	-	< 5, . 75% lymphocyte
Protein	-	20-45 mg/dl
Glucose	-	> 50 (2/3 of serum glucose)

120. Which of the following enzymes is stimulated by glucagon?

a) Acetyl-CoA carboxylase

b) Glycogen phosphorylase

c) Glycogen synthase

d) HMG-CoA reductase

Correct Answer - B

Before you started analyzing all of the answer choices you should have reminded yourself that glucagon increases serum glucose. So an enzyme stimulated by glucagon might be involved in either the breakdown of glycogen to glucose (glycogenolysis) or in the creation of glucose from noncarbohydrate precursors (gluconeogenesis). ***Glycogen phosphorylase catalyzes the first step in glycogenolysis; it makes sense that it would be stimulated by glucagon.***

Acetyl-CoA carboxylase catalyzes the first step in fatty acid synthesis, an anabolic process that would be stimulated by insulin, not glucagon.

As its name implies, **glycogen synthase** is involved in the synthesis of glycogen. Glucagon (and epinephrine) stimulate the phosphorylation and inactivation of glycogen synthase.

HMG-CoA reductase is the key enzyme involved in the synthesis of cholesterol. Since this is an anabolic process that occurs in the well-fed state, you would expect it to be stimulated by insulin and inhibited by glucagon (which it is).

Ref: Bender D.A., Mayes P.A. (2011). Chapter 14. Carbohydrates of Physiologic Significance. In D.A. Bender, K.M. Botham, P.A. Weil, P.J. Kennelly, R.K. Murray, V.W. Rodwell (Eds), *Harper's Illustrated Biochemistry*, 29e.

121. IP₃/DAG pathway is activated by which of the following?

a) Protein kinase A

b) Protein kinase C

c) Phospholipase C

d) Phospholipase A

Correct Answer - C

Ans. is 'c' i.e., Phospholipase C

[Ref Guyton 12th/e p. 890 6 KDT 6h/e p. 46]

Phospholipase IP₃-DAG system

- Activation of phospholipase (by stimulatory G protein) hydrolyses the membrane phospholipid phosphatidylinositol 4, 5 bisphosphate (PIP) to generate the second messenger inositol 1, 4, 5 - triphosphate (IP₃) and diacylglycerol (DAG).

122. Ratio of motor units to number of muscle fibers in striated muscle of eyes is?

a) 1 : 3

b) 1: 30

c) 1 : 300

d) 1 : 3000

Correct Answer - A

Ans. is'a'i.e., 1:3

[Ref Medical physiology By Walter F. Boron, Emile L.Boulpaep 2d/e ch. 9]

- The innervations ratio refers to the number of muscle fibers supplied by a single motor neuron.
- In striated muscles the ratio varies between different muscle groups according to their function.

123. Which of the following is the function of Tropomyosin?

a) It slides over myosin

b) It causes release of calcium

c) It helps in the fusion of actin and myosin

d) It covers myosin and prevents attachments of actin and myosin

Correct Answer - D

Tropomyosin molecules lie on top of the active sites of the actin strands, thereby preventing the attraction between the actin and myosin filaments.

Ref: Ganong's Review of Medical Physiology, 23rd Edition, Chapter 5

124. Blood group antigen NAG transferase present but galactosyl transferase is absent is ?

a) Group A

b) Group B

c) Group AB

d) Group 0

Correct Answer - A

Ans. is'a'i.e., Group A

- ABO gene products are the products of enzymatic reactions, catalysed by enzymes called glycosyltransferase (galactosyltransferase).

125. Which of the following is not stored in cell ?

a) Insulin

b) Cortisol

c) Thyroxin

d) Renin

Correct Answer - B

Ans. is'b'i.e., Cortisol

[Ref Essentials of physiology P' 812]

- Peptides and amino hormones are stored in cells within secretory vesicle.
- In contrast, steroid hormones are not stored in secretory vesicles before their secretion.

126. ABC transporter ?

a) P. glycoprotein

b) Membrane sparing

c) Channel

d) Adenylyl cyclase

Correct Answer - A

Ans. is'a' i.e., P. glycoprotein

[Ref: Quantitative human physiology p. 727]

- ATP-binding cassette transporters (ABCtransporters) are integral transmembrane proteins that utilize ATP as an energy source to translocate a variety of substrates across membranes.
- P-glycoprotein is an ATP-binding cassette (ABC) transporter and is an important factor to limit membrane permeability in several tissues and/or elimination pathways into urine (renal tubules) and bile (liver).

127. Cause of thick pancreatic secretions in cystic fibrosis?

- a) Overproduction of mucin
- b) Failure to clear mucin due to epithelial dysfunction
- c) Defect in chloride channel leading to water reabsorption
- d) Defect in sodium channel leading to water reabsorption

Correct Answer - C

Answer is **C (Defect in chloride channel leading to water reabsorption)**:

Thick exocrine secretions in Cystic Fibrosis result from a defect in CFTR Protein which acts as a chloride channel (defect in chloride channel is the primary abnormality).

Cystic Fibrosis CF is characterized by a defect in Cystic Fibrosis Transmembrane Regulator (CFTR) gene found on chromosome 7. The CFTR gene codes for the cell membrane transporter protein (CFTR Protein) that normally forms chloride channels in the plasma membrane. Defect in CFTR Protein results in a decrease in chloride permeability across the membrane of epithelial cells of exocrine glands. Since chloride transport across membranes is closely linked to Sodium transport, the defect in chloride channels, leads to an influx of salt and water into the cells resulting in dehydration of the extracellular fluid compartment, an increased chloride concentration in sweat (The basis of diagnostic sweat test) and thickening of exocrine secretions. Virtually all of the clinical manifestations of the disease can be attributed to the thick, tenacious secretions that accumulate in the ducts of exocrine glands

128. CAMP acts through:

a) Activation of protein kinase

b) Activation of adenylate cyclase

c) Ca²⁺ release.

d) All

Correct Answer - A
A i.e., Activation of protein kinase

129. Normal intraabdominal pressure is ?

a) 0 - 8mmHg

b) 10 - 15mmHg

c) 15 - 20mmHg

d) 20 - 26mmHg

Correct Answer - A

Ans. is'a'i.e., 0 - 8 mmHg

[Ref: Essentials of medical physiolog p. 618]

- Normal intra-abdominal pressure is 0-6 mmHg.

130. All of the following increases calcium absorption from the gut except:

a) Phytates

b) Vitamin D

c) Alkaline pH in gut

d) Protein in diet

Correct Answer - C

Ans: C. Alkaline pH in gut

(Ref. Ganong 25/e p483, 24/e p485; Harrison 19/e p2457)

Factors increasing Calcium Absorption		Factors decreasing Calcium Absorption	
• Vitamin D°	• Lactose°	• Oxalates°	• High Mg ²⁺
• Parathormone°	• Amino acids° (protein rich diet)	• Phytates°	• Caffeines°
• Acidic pH°		• Alkaline pH°	• Dietary fibers°
		• High phosphate°	

131. Esophageal phase of deglutition is caused by?

a) Vagal tone

b) Primary peristalsis

c) Secondary peristalsis

d) Voluntary action

Correct Answer - B

Ans. is 'b' i.e., Primary peristalsis [Ref: Guyton 12h1e p. 763-765]

Stages of deglutition

- Esophageal stage, another involuntary phase that transports food from the pharynx to the stomach.
- The esophagus functions primarily to conduct food rapidly from the pharynx to the stomach and its movements are organised for this purpose.
- The esophagus pharynx exhibits two types of peristaltic movements.
- Primary peristalsis is simply a continuation of the peristaltic wave that begins in the pharynx and spreads into the lower end of the esophagus even more rapidly than the peristaltic wave itself, in about 5 to 8 seconds, because of the additional effect of gravity pulling the food downward.

132. Food causes reflex defecation?

a) Enterogastric reflex

b) Defecation reflex

c) Gastrocolic reflex

d) Rectoanal reflex

Correct Answer - C

Ans. is 'c' i.e., Gastrocolic reflex

[Rel Guyton 11th/e p. 771)

- Appearance of mass movements after a meal is facilitated by gastrocolic and duodenum reflexes.
- These reflexes result from the distension of the stomach and duodenum.
- The best example of gastrocolic reflex is seen in early infancy where defecation often follows a meal.

133. What is the function of synaptobrevin?

a) Presynaptic vesicle fusion

b) Post synaptic vesicle fusion

c) Inhibits synaptic transmission

d) Amplify synaptic transmission

Correct Answer - A

Ans. is 'a' i.e., Presynaptic vesicle fusion

Ref. Ganong 23'd/e p. 116-119; European Journal of Biochemistry
Volume

- 249 issue 2 p. 540-546
- Synaptobrevins/VAMPs (vesicle associated membrane protein) represents a family of integral membrane proteins of 11-13 kDa with the N-terminal region exposed to the cytoplasm and a C-terminal transmembrane domain.
- Synaptobrevin/VAMP is an essential component of the exocytotic fusion machine, related to a larger protein family referred to as v-SNARES.
- The primary role of SNARE proteins is to mediate vesicle fusion, that is, the exocytosis of cellular transport vesicles with the cell membrane at the porosome or with a target compartment (such as a lysosome).

134. Which micronutrient deficiency causes anemia?

a) Copper

b) Molybdenum

c) Selenium

d) Fluorine

Correct Answer - A

Ans. is 'a' i.e., Copper

- Copper containing protein ceruloplasmin is necessary for transport of iron in the Ferric form across membranes
- Copper is an integral component of ALA synthase, which is necessary for heme synthesis
- Copper helps in the uptake of iron across normoblasts

135. Final common pathway of metabolism of carbohydrates, lipids and protein metabolism is ?

a) TCA cycle

b) Glycogenesis

c) Gluconeogenesis

d) None of the above

Correct Answer - A

Ans. is 'a' i.e., TCA cycle [Ref Harper 29th/e p. 190, 175]

- Tricarboxylic acid (TCA) cycle is a series of reactions through which final oxidation of acetyl CoA to CO₂ and H₂O occurs along with generation of ATP.
- TCA cycle is the final common pathway of the oxidation of the acetyl CoA, formed from carbohydrates, fatty acids and amino acids.
- It provides electrons which are transferred to ETC where they help in the formation of ATP.

136. Amphibolic cycle is ?

a) Citric acid cycle

b) Glycolysis

c) Protein synthesis

d) Lipolysis

Correct Answer - A

Ans. is 'a' i.e., Citric acid cycle

Metabolic pathways fall into three categories :?

- **Anabolic pathways:-** Involved in synthesis of larger and more complex compounds from smaller precursors, e.g. synthesis of protein from amino acids, triglyceride synthesis, cholesterol synthesis, etc.
- **Catabolic pathway:-** Involved in the breakdown of larger molecules, commonly involving oxidative reaction.
- They are exothermic reactions producing reducing equivalents and mainly via the ETC, ATP. Example are glycolysis, 13-oxidation of fatty acid etc.
- **Amphibolic pathway:-** occur at the "crossroads" of metabolism, acting as links between the anabolic and catabolic pathways, eg. the *citric acid cycle*.

137. Allosteric stimulator of glycogen synthase -

a) AMP

b) Insulin

c) Glucose-6-phosphate

d) Glucose

Correct Answer - C

Ans. is 'c' i.e., Glucose-6-phosphate [Ref Harper 29th/e p. 182 & 28th/e p.

138. In TCA cycle, NADH is produce at all sites except -

a) Isocitrate dehydrogenase

b) Succinate dehydrogenase

c) Malate dehydrogenase

d) a Ketoglutarate dehydrogenase

Correct Answer - B

Ans. is 'b' i.e., Succinate dehydrogenase [Ref: Harper 28th/e p. 155, 145]

NADH is produced and CO₂ is liberated at 3 steps :

1. Conversion of isocitrate to a-ketoglutarate by isocitrate dehydrogenase
2. Conversion of a-ketoglutarate to succinyl CoA by a-ketoglutarate dehydrogenase
3. Conversion of L-malate to oxaloacetate by malate dehydrogenase.

139. Epimer combination (s) is/are :

a) D-glucose & D-fructose

b) D-mannose & D-talose

c) D-glucose & D-mannose

d) None of these

Correct Answer - C

Ans. C, i.e. D-glucose & D-mannose

- Carbohydrate isomers that differ in configuration around only one carbon atom are called epimers. D-glucose and D-mannose are C2 epimers whereas D-glucose and D-galactose differ only at C4.

However, D-mannose & D-galactose are not epimers as they differ at 2 carbons (2 & 4).

Enantiomers (optical isomers or stereoisomers) are pairs of structures that are mirror images of each other but not identical, similar to left and right hand which are the same but opposite. These are non super imposable and are designated as D and L-sugar.

Each enantiomer often *shows different chemical reactions* with other enantiomers. Because of presence of many enantiomers in living beings, there is usually a marked difference in effects of two stereoisomers. For example only one of drug stereoisomer produces desired effect while the other does not.

140. TCA is not controlled by ?

a) NADH

b) ATP

c) NADPH

d) ADP

Correct Answer - C

Ans. is 'c' i.e., NADPH [Ref Chatterjee & Shinde 7th/e p. 171,166-180; Harper 28th/e p. 145-147]

Enzyme

Allosteric inhibitors

Citrate synthase

ATP, long chain acyl-CoA, succinyl-CoA

Isocitrate dehydrogenase
ADP

ATP, NADH

α -ketoglutarate
dehydrogenase

NADH, succinyl CoA

141. Source of ribose is ?

a) HMP shunt

b) Glycolytic pathway

c) Uronic acid pathway

d) Beta oxidation

Correct Answer - A

Ans. is 'a' i.e., HMP shunt [Ref Harper 28th/e p. 174-176]

HMP shunt is particularly important for two purposes :-

1. Synthesis of ribose for nucleotide and nucleic acid formation.
2. Formation of NADPH which plays important role in several other biological processes, e.g. synthesis of fatty acids, cholesterol, steroid hormones and neurotransmitters.

142. Major site of protein glycosylation is ?

a) ER and golgi body

b) Ribosome and golgi body

c) ER and ribosome

d) Ribosome and cytoplasm

Correct Answer - A

Ans. is 'a' i.e., ER and golgi body [Ref Harper 28thVe p. 514, 515; Lippincotts 5thle p. 167,168]

- N- Glycosylation occurs in ER and O-glycosylation occurs in golgi apparatus.

143. If FADH₂ provides reducing equivalents to electron transport chain then ATP formed will be ?

a) 1.5

b) 2.5

c) 3.5

d) 4.5

Correct Answer - A

Ans. is 'a' i.e., 1.5 [Ref Harper 28th/e p. 106, Vasudevan 5th/e p. 231]

ATP generation by oxidation of

	Presently accepted	Old values
NADH	2.5	3
FADH ₂	1.5	2
Glucose	32	38
Acetyl CoA	10	12
Palmitate	106	129

144. Source of ATP in RBCs is ?

a) Glucose

b) Fatty acid

c) Aminoacid

d) Ketone body

Correct Answer - A

Ans. is 'a' i.e., Glucose

- RBCs don't have mitochondria., The only pathway that provides ATP even in anaerobic conditions is glycolysis.
- Oxidation of reducing equivalents in the respiratory chain is coupled with phosphorylation of ADP to ATP.
- *This is the most important mechanism for capturing the energy present in various nutrients.*

145. Role of creatine phosphate in muscle ?

a) Helps in gluconeogenesis

b) Provides instant energy

c) Involved in action-contraction coupling

d) Helps in stretch reflex

Correct Answer - B

Ans. is 'b' i.e., Provides instant energy

- In muscles, creatine phosphate occurs as a reservoir of high-energy phosphate groups.
- It provides a *quick source of energy* for muscle fibres to contract when they need an initial burst of energy.
- Creatine phosphate helps generation of ATP in exercising muscles by substrate level phosphorylation.
- Creatine phosphate liberates 10.3 Kcal/mole ($\Delta G = -10.3$).

146. Dinitrophenol causes:

a) Inhibition of ATP synthase

b) Inhibition of electron transport

c) Uncoupling of oxidation and phosphorylation

d) Accumulation of ATP

Correct Answer - C

C i.e. Uncoupling of oxidation & phosphorylation

- Dinitrophenol is an uncoupler.
- Uncouplers cause uncoupling of oxidation and phosphorylation, i.e. they allow electrons transport to proceed without ATP synthesis.
- Picric acid (2, 4, 6- trinitrophenol) when reduced with sodium sulphide forms picraamic acid (2-amino-4, 6- dinitrophenol).
-

147. Action of metalloproteinase ?

a) Degradation of collagen

b) Polymerization of collagen

c) Oxidation of collagen

d) Stimulation of collagen

Correct Answer - A

Ans. is 'a' i.e., Degradation of collagen

- Degradation of collagen and other ECM (extracellular matrix) proteins is achieved by matrix metalloproteinases (MMPs).
- MMPs is a family of enzymes that have in common a 180-residue zinc protease domain.

Matrix metalloproteinases include :-

- Interstitial collagenase (MMP-1, 2, and 3) : Cleave the fibrillar collagen types I, II and III.
- Gelatinases (MMP-2 and 9) : Degrade amorphous collagen and fibronectin.
- Stromelysins (MMP-3, 10 and 11) : Act on proteoglycans, laminin, fibronectin and amorphous collagen.
- Membrane-bound MMPs (ADAMs) : Cleave membrane-bound precursor forms of TNF and TGF- α , releasing the active molecule.

148. Lineweaver-Burk plot represents which of the following?

a) Oxygen dissociation

b) CO diffusion

c) Enzyme kinetics

d) Logarithmic index of DNA replication

Correct Answer - C

Ans. is 'c' i.e., Enzyme kinetics [Ref Clinical biochemistry 3rd /e p. 112]

- Lineweaver Burk plot, also called double reciprocal plot represents lineweaver - burk equation of enzyme kinetics.
- It is used to determine the values of V_{max} and K_m .

149. Octant rule is related to ?

a) Spectroscopy

b) Chromatography

c) Electroscopy

d) None

Correct Answer - A

Ans. is 'a' i.e., Spectroscopy [Ref en.wikipedia.org.]

- **Ultraviolet visible spectroscopy (UV-vis) can distinguish between enantiomers by showing a distinct Cotton effect for each isomer.**
- **UV-vis spectroscopy sees only chromophores, so other molecules must be prepared for analysis by chemical addition of a chromophore such as anthracene.**
- **Two methods are reported : the octant rule and the exciton chirality method.**

150. True about membranes is all except -

a) Dynamic & asymmetric

b) Lipid soluble moiety on outer & inner surface

c) Lipid soluble moiety within the membrane

d) Lipid rafts are characteristic features

Correct Answer - B

Ans. is 'b' i.e., Lipid soluble moiety on outer & inner surface

- The membrane that surrounds the cell is called cell membrane. It is approximately 7.5-10 nanometer thick.
- It is composed almost entirely of proteins and lipids . Carbohydrates are minimal and occurs almost invariably in combination with proteins or lipids in the form of glycoproteins or glycolipids.
- Phospholipid of cell membrane has two ends. One end is soluble in water, i.e., hydrophilic (polar); and the other end is soluble in lipid, i.e., hydrophobic (non-polar).
- The phosphate end of phospholipid is hydrophilic and the fatty acid portion is hydrophobic.
- The phospholipid molecules arrange themselves as a bilayer, with polar (hydrophilic) end lies at the internal or external side of membrane and nonpolar (hydrophobic) end lies in the central portion of membrane, facing each other. Therefore, hydrophilic end faces ECF and ICF both.
- The cell membranes contain combinations of glycosphingolipids and protein receptors organized in glycolipoprotein microdomains termed lipid raft.
- Membranes are asymmetrical structures and their components are dynamic

151. Endoplasmic reticulum is not involved in ?

a) Protein synthesis

b) Steroid synthesis

c) DNA synthesis

d) Triglyceride synthesis

Correct Answer - C

Ans. is 'c' i.e., DNA synthesis [Ref Pankaj Naik p. 2]

Endoplasmic reticulum are involved in :-

- .. Rough ER : Protein synthesis (hormones, enzymes etc.)
- ?. Smooth ER: Triglyceride synthesis, steroid synthesis, cholesterol synthesis, Phospholipid synthesis, fatty acid chain elongation.

152. Enzyme does not act by ?

a) Increasing the rate of reaction

b) Catalyzing the reaction

c) Increasing activation energy

d) Forming non-covalent interactions

Correct Answer - C

Ans. is 'c' i.e., Increasing activation energy

- Enzymes increase the rate of a biochemical reaction, therefore they are called catalysts of reaction.
- Now the question arises that how does they do that?
- In a chemical reaction, the substrate has to be converted to a higher energy form (called transition form) before it can form the reaction products.
- The transition state is structurally an intermediate between the substrate and the product, and represents the highest energy arrangement of atoms.
- Therefore, it is unstable; once formed, it decomposes almost immediately to form the reaction product.
- So, this high energy intermediate acts as energy barrier, separating the substrates and the products.
- This barrier, called the free energy of action, is the energy difference between the energy of the substrates and high energy intermediates.
- In other words, initially some energy must be put into the substrate for conversion into transition state (high-energy intermediate); this is the free energy of activation.
- The enzymes speed up the chemical reaction by lowering the magnitude of the activation energy barrier, i.e., free energy of

activation.

- Most enzyme-substrate combinations are mostly due to weak non-covalent interactions like hydrogen bond, hydrophobic interactions, ionic (electrostatic) interaction and Vander waals forces.
- However, covalent catalysis involves the formation of a covalent bond between the amino acyl residues of active site of enzyme and substrate.
- Covalent catalysis is used by serine proteases (trypsin, chymotrypsin) which bind their substrate covalently at serine side chain.

153. Electron transport from cytochrome 'b' to cytochrome 'c' is inhibited by ?

a) Oligomycin

b) Antimycin

c) Piericidin

d) Carbon monoxide

Correct Answer - B

Ans. is 'b' i.e., Antimycin [Ref Harper 28th/e p. 109]

- Cytochrome b to cytochrome c₁ (complex III) is inhibited by dithionite, antimycin A, BAL and naphthoquinone.

154. Selenocysteine is associated with ?

a) Carbonic anhydrase

b) Catalase

c) Deiodinase

d) Transferase

Correct Answer - C

- *Selenocysteine is considered as 21 standard amino acid.*
- *It is present at the active site of some enzymes that catalyze redox reactions, e.g. thioredoxin reductase, glutathione peroxidase, and the deiodinase (converts thyroxin to triiothyronine).*
- *Biosynthesis of selenocysteine requires cysteine, serine, ATP and a specific t-RNA*
- *Serine provides the carbon skeleton of selenocysteine.*
- *Selenocysteine has a structure similar to cysteine, but containing the trace element selenium in place of sulfur atom of cysteine*

155. Copper containing enzyme is ?

a) Cytochrome oxidase

b) Catalase

c) LDH

d) None

Correct Answer - A

Ans. is 'a' i.e., Cytochrome oxidase

- Copper containing enzymes are *cytochrome oxidase*, tyrosinase, lysyl oxidase, ferroxidase (ceruloplasmin), Ascorbic acid oxidase, and superoxide dismutase.

156. Enzyme catalase is found in -

a) Lysosome

b) Mitochondria

c) Peroxisomes

d) Cytosol

Correct Answer - C

Ans. is 'c' i.e., Peroxisomes [Ref Ganong 24th/e p. 40; Harper 28th/e p. 597]

Mitochondria	Inner membrane :- ATP synthase, Succinate dehydrogenase Intermembrane space :- Creatine kinase, Adenyl kinase. Matrix :- Glutamate dehydrogenase, Pyruvate dehydrogenase, enzymes of TCA cycle & (3-oxidation of fatty acids)
Plasma membrane	5'-Nucleotidase, Adenyl cyclase, Na ⁺ K ⁺ ATPase
Lysosome	Acid phosphatase
Golgi Apparatus	Galactosyl transferase, Golgi mannosidase II, Sialyl transferase, GlcNAc transferase I
Endoplasmic reticulum	Glucose-6-phosphatase
Peroxisome	Catalase, Urate (uric acid) oxidase
Cytosol	Lactate dehydrogenase
Nucleus	DNA

157. Watson's DNA model is :

a) Right handed, parallel

b) Left handed, anti parallel

c) Left handed, parallel

d) Right handed, anti parallel

Correct Answer - D

Chemically, DNA consists of two long polymers of simple units called nucleotides, with backbones made of sugars and phosphate groups joined by ester bonds.

This common form of DNA is said to be right handed because as one looks down the double helix, the base residues form a spiral in a clockwise direction.

These two strands run in opposite directions to each other and are therefore anti-parallel.

158. Reverse Transcriptase is -

a) DNA polymerase

b) DNA dependant RNA polymerase

c) RNA dependant DNA polymerase

d) None

Correct Answer - C

Ans. is 'c' i.e. RNA dependent DNA polymerase

The Characteristic biochemical feature of retroviruses is the presence of RNA dependent DNA polymerase (reverse transcriptase)

159. Ribonuclease-P is a ?

a) Ligase

b) Ribonuclease

c) Ribozyme

d) Ribosome

Correct Answer - C

Ans. is 'c' i.e., Ribozyme [Ref Lippincott's 4th/e ch. 30]

There are five classes of ribozymes :

1. Ribonuclease P
2. Hammerhead
3. Tetrahymena group I intron
4. HDV ribozyme
5. Hairpin ribozyme

160. Which is not a step of PCR ?

a) Annealing

b) Extension

c) Transformation

d) Denaturation

Correct Answer - C

Ans. is 'c' i.e., Transformation [Ref Lippincott's 5thle p. 479-83;

Harper 28th/e p. 395] Steps in PCR

- Isolation of target DNA sequence → Primer **construction** → **Denaturation** of DNA → Annealing of primers to single stranded DNA → **Chain extension.**

161. Von Geirke's occurs due to deficiency of ?

a) Glucose-6-phosphatase

b) Liver Phosphorylase

c) Muscle phosphorylase

d) Debranching enzyme

Correct Answer - A

Ans. is 'a' i.e., Glucose-6-phosphatase

Glucose - 6- phosphatase is deficient in Von Gierke's disease.

162. Gaucher's disease is due to deficiency of enzyme :

a) Sphingomyelinase

b) 13-Clucosidase

c) Hexosaminidase-A

d) P-Galactosidase

Correct Answer - B
B i.e. 13-glucosidase

163. Severe hypoglycemia, increased uric acid and renal failure are seen in ?

a) Carbohydrate metabolic disorder

b) Glycogen storage disorder

c) Lipoprotein deficiency disorder

d) Protein folding disorder

Correct Answer - B

Ans. is 'b' i.e., Glycogen storage disorder [Ref Nelson 18th le table. 81.1, Harper 27th/e ch. 33]

These symptoms are seen in Von-Gierhe disease (a glycogen storage disease), which is characterized by

1. Severe fasting hypoglycemia
2. Fatty liver with hepato and renomegaly
3. Progressive renal disease
4. Growth retardation and delayed puberty
5. Hyperlacticacidemia, hyperlipidemia, hyperuricemia

164. Amino acid used in the synthesis of purines ?

a) Glycine

b) Ornithine

c) Alanine

d) Threonine

Correct Answer - A

Ans. is 'a' i.e., Glycine [Ref Harper 29th le p. 332]

- Amino acids involved in purine synthesis - *Glycine, aspartate, glutamine.*
- Amino acids involved in pyrimidine synthesis → Glutamine, aspartic acid (aspartate).

165. Glycine provides all in purine synthesis, except ?

a) Carbon - 4

b) Carbon - 5

c) Nitrogen - 4

d) Nitrogen - 7

Correct Answer - C

Ans. is 'c' i.e., Nitrogen - 4 [Ref: Harper 29th/e p. 232]

- **In de novo synthesis, purine ring is formed from variety of precursors is assembled on ribose-5-phosphate. Precursors for de novo synthesis are ?**
 1. Glycine provides C4, Cs and N7
 2. Aspartate provides N1
 3. Glutamine provides N3 and N9
 4. Tetrahydrofolate derivatives furnish C2 and Cs
 5. Carbon dioxide provides C6

166. Serine while metabolism is converted to which amino acid?

a) Proline

b) Alanine

c) Glycine

d) None of the above

Correct Answer - C

Following conversion to glycine, catalyzed by serine hydroxymethyltransferase, **serine catabolism merges with that of glycine.**

- It requires folic acid (as THF) and vitamin B6 (as PLP)

Ref: Harper 28th edition, chapter 29.

167. What supplies ammonia to liver ?

a) Arginine

b) Alanine

c) Lactate

d) Pyruvate

Correct Answer - B

Ans. is 'b' i.e., Alanine [Ref Harper 28th/e p. 170]

Transport of alanine from muscle to liver (glucose-alanine cycle) has two functions :?

- .. Providing substrate for gluconeogenesis
- ?. Transport of ammonia (NH_4^+) to liver for urea synthesis.

168. In liver ammonia is formed from which amino acid ?

a) Glycine

b) Glutamine

c) Isoleucine

d) Proline

Correct Answer - B

Ans. is 'b' i.e., Glutamine [Ref Read below] Transport of ammonia

- Ammonia is produced in most of the tissues. However, it should be transported to liver as urea cycle (formation of urea) occurs only in liver. Since free ammonia is highly toxic, it is never transported in free form in blood.

Two mechanisms are available for transport of ammonia from the peripheral tissues to the liver :

1) In the form of glutamine

- In many tissues like liver, kidney and brain, ammonia combines with glutamate to yield glutamine, by the action of glutamine synthase. The brain is a rich source of glutamine synthase and it predominantly detoxifies ammonia by this route
- Glutamine is a nontoxic major transport form of ammonia. The glutamine is transported by blood to liver where deamination (removal of amino group) of glutamine takes place. Glutaminase cleaves glutamine to yield glutamate and free ammonia ammonium ion). "[he ammonia is converted by liver to urea.
- Formation and secretion ammonia by renal tubular cells maintain acid base balance. Ammonia is formed from glutamine by glutaminase. Excretion of ammonia increases in metabolic acidosis

and decreases in metabolic alkalosis.

2) In the form of alanine

- Alanine transports ammonia from muscles to liver through glucose-alanine cycle'.
- In muscle, glutamate is formed from ammonia and α -ketoglutarate by reversal of the glutamate dehydrogenase reaction. L-glutamate then transfers its α -amino group to pyruvate by transamination reaction to form alanine.
- Alanine is transported to liver. In liver alanine is converted to pyruvate and glutamate by transamination reaction. Glutamate undergoes oxidative deamination to release free ammonia, which is converted to urea.

169. Disulfide bonds are formed by pairs of which amino acid?

a) Methionine

b) Homocysteine

c) Serine

d) Cysteine

Correct Answer - D

Ans. is 'd' i.e., Cysteine

There are two sulfur containing amino acids :-

i) Cystein

ii) Methionine

- The side chain of cysteine contains sulfhydryl group that has a pKa of approximately 8.4 for dissociation of its hydrogen sulfhydryl groups of two cystein molecules can form covalent disulfide bond to form cystine.
- Methionine although it contains sulfur group, does not contain sulfhydryl group and cannot form disulfide bond.
- Disulfide bridges are R-S-S-R', These bridges are formed by oxidation of Sulfhydryl groups of cysteine residues of proteins.
- This is the basis or reducing type of SDS - PAGE. SDS PAGE is used to find the molecular weight of an unknown protein.
- Disulfide bridges are not formed by methionine, as methionine does not have sulfhydryl group - they have a thioether linkage

170. Xanthurenic acid in the urine is suggestive of deficiency of which vitamin?

a) Vitamin B6

b) Vitamin B12

c) Folic acid

d) Thiamine

Correct Answer - A

Xanthurenic acid is formed in the side reaction of kynurenine.

Kynurenine which is an intermediate of tryptophan metabolism requires vitamin B6 dependent enzyme kynureinase for its normal metabolism.

In pyridoxine (Vit B6) deficiency kynurenine is metabolized to xanthurenic acid which is excreted unchanged in urine.

Ref: Textbook of Biochemistry DM Vasudevan, 5th Ed, page 208

171. Pyridoxine deficiency leads to altered metabolism of?

a) Phenylalanine

b) Tryptophan

c) Methionine

d) Tyrosine

Correct Answer - B

Ans. is 'b' i.e., Tryptophan [Ref Dineshpuri 3rd le p. 378]

- Tryptophan load test is used for pyridoxin.
- In pyridoxin (vitamin B₆) deficiency, xanthurenic acid excretion is increased after giving tryptophan load dose.

172. All of the following are consequences of Protein denaturation, EXCEPT:

a) Loss of solubility

b) Loss of function

c) Loss of primary structure

d) Change in viscosity

Correct Answer - C

Protein denaturation is defined as the partial or complete disorganization of a proteins characteristic three dimensional shape as a result of disruption of its secondary, tertiary, and quarternary structural interactions.

Protein denaturation doesn not affect the primary structure of proteins.

Consequences of Denaturation:

- Loss of enzymatic activity/Function (death)
- Destruction of toxins
- Improved digestibility
- Loss of solubility
- Changes in texture

173. Protein structure not lost in denaturation is ?

a) Primary structure

b) Secondary structure

c) Tertiary structure

d) Quaternary structure

Correct Answer - A

Ans. is 'a' i.e., Primary structure

- The term denaturation refers to disruption of higher order (secondary, tertiary and quaternary) structure of protein.
- All non-covalent bonds that maintain higher order structure are disrupted, but peptide bond (covalent bond) remains intact. Thus, the primary structure is not altered during denaturation, i.e., amino acid sequence is not altered, but denaturation may completely disrupt secondary, tertiary and quaternary structure, e.g., denaturated oligomeric proteins dissociated into subunits, each with a random coil formation.
- Denaturation is always accompanied by a loss of biological function, e.g., enzymes are inactivated and antibodies fail to act with antigens.
- Denaturation is generally irreversible, e.g., boiled egg does not regain its original form when kept in cold.
- Denatured proteins are *less soluble* and in many cases they precipitate.

174. In which form are bile acids present in body ?

a) Weak acids

b) In ionized form

c) In salt form

d) In esterified form

Correct Answer - C

Ans. is 'c' i.e., In salt form [Ref Clinical biochemistry 3rd e,p 815]

- Bile acids are mainly presents as sodium or potassium salts which are conjugated with glycine or taurine to form bile salts.
- Primary bile acids are *cholic acid* and *chenodeoxycholic acid*, which are synthesized from cholesterol in liver.
- In the intestine some of the primary bile acids are converted into secondary bile acids, i.e., *deoxycholic acid* (formed from cholic acid) and *lithocholic acid* (derived from chenodexoxycholic acid).
- Glycine and taurine conjugates of these bile acids are called as bile salts. For example, cholic acid is a bile acid, and its glycine conjugate (glycocholic acid) is a bile salt.
- Bile salts = Sodium or potassium + Amino acid (glycine or taurine) + Bile acids (Cholic acid or chenodeoxycholic).

175. Bile acids synthesized in liver (Primary bile acids):

a) Taurocholic acid

b) Cholic acid

c) Chenodeoxycholic acid

d) All Correct

Correct Answer - D

Ai.e. Taurocholic acid, B i.e Cholic acid; C i.e. Chemodeoxycholic acid.

Bile salts = Sodium or potassium + Amino acid (glycine or taurine) + Bile acids (Cholic acid or chenodeoxycholic acid.

- Sodium + glycine + cholic acid = Sodium-glyco-cholic acid (sodium-glyco-cholate)
- Sodium + taurine + cholic acid = Sodium-tauro-cholic acid (sodium-tauro-cholate)
- Sodium + glycine + chenodeoxycholic acid = Sodium-glyco-chenodeoxycholate
- Sodium + taurine + chenodeoxycholic acid = Sodium-tauro-chenodeoxycholate
- Similarly potassium bile salts are *potassium-glycocholate*, *potassium-taurocholate*, *potassium-glyco chenodexoxycholate*, and *potassium-tauro-chenodexoxycholate*.

176. All are actions of HDL EXCEPT ?

a) Reverse transport of cholesterol to liver

b) Apolipoproteins storage

c) Transfer of malate into mitochondria

d) Esterification of cholesterol

Correct Answer - C

Ans. is 'c' i.e., Transfer of malate into mitochondria [Ref Lippincott's 4th/e p. 234-236]

HDL has following important function -

- Reservoir of apolipoproteins (apo C-II and apo E)
- Esterification of cholesterol
- Reverse cholesterol transport from tissue **to liver**
- Uptake of unesterified cholesterol

177. Isoelectric point of a protein is located by which method?

a) Isoelectric pointing

b) Isoelectric cardiac failure

c) Ion exchange

d) pH

Correct Answer - B

Ans. is 'b' i.e., Isoelectric cardiac failure [Ref Lehninger 4thie p. 93-94]

- Isoelectric focusing is a procedure used to determine the isoelectric point (pI) of a protein.
- A pH gradient is established by allowing a mixture of low molecular weight organic acids and bases to distribute themselves in an electric field generated across the gel.
- When a protein mixture is applied, each protein migrates until it reaches the pH that matches its pI.
- Proteins with different isoelectric points are thus distributed differently throughout the gel.

178. Thiamine deficiency leads to ?

a) Confabulation

b) Low output cardiac failure

c) Anaemia

d) Night blindness

Correct Answer - B

Ans. is 'a' i.e., Confabulation [Ref Harper 27thVe ch. 44, Harrison 18thVe ch. 74; Kaplan & Saddock 9thie_ p. 396-413]

Alcohol induced thiamine deficiency	
Wernicke's Encephalopathy	Korsakoffs Psychosis
Triad of : <ul style="list-style-type: none">Global confusion •Horizontal nystagmus & •Ophthalmoplegia (B/L •lateral rectus palsy)Cerebellar ataxia •	<ul style="list-style-type: none">Amnesia (recent > long-term)Confabulation (filling memory gaps with imaginary events)

179. Which does not play a role in protein synthesis?

a) Exon

b) Intron

c) m-RNA

d) ATP

Correct Answer - B

Ans. is 'b' i.e., Intron [Ref Lippincott's ^{5th} p. 426]

- Primary transcript contains introns & exons. Splicing removes introns (segment of gene that is not represented in mature m-RNA) from primary transcript.
- **Synthesis of protein from mRNA is called translation.** Translation is the process by which ribosomes convert the information (genetic code) carried by mRNA to the synthesis of new protein.
- **Translation occurs in ribosomes.** Basic requirements for translation include mRNA, tRNAs, ribosomes, energy (ATP and GTP), enzymes, and specific protein factors like initiation factors, elongation factors etc.

180. Not a nucleic acid test?

a) Western blot

b) Southern blot

c) Northern blot

d) Microarray

Correct Answer - A

**Ans. is 'a' i.e., Western blot [Ref Lehninger 5th/e p. 325-28;
Lippincott's 5thle p. 483-85]**

181. Which of the following vitamin acts as a cofactor for metabolism of sulphur containing amino acids?

a) Folic acid

b) Biotin

c) Vit K

d) Pyridoxine

Correct Answer - A

Methyl group in N5-methyl tetrahydrofolic acid (N5- methyl THFA) is used for synthesis of active methionine, which takes part in transmethylation reactions.

- Such transmethylation reactions are required for synthesis of choline, epinephrine, creatine etc.
- Sulphur containing amino acids include **cysteine** and **methionine**.

Ref: Textbook of Biochemistry by DM Vasudevan, 5th edition, Page 303.

182. Enzyme deficient in maple syrup urine disease?

a) α -ketoacid decarboxylase

b) Transaminase

c) Isomerase

d) Mutase

Correct Answer - A

Maple syrup urine disease (MSUD) or branched chain ketoaciduria

- It is an inborn error of metabolism of branched chain amino acids *valine*, *leucine* and *isoleucine*.
- It is due to deficiency of enzyme that catalyzes the second reaction in these amino acids metabolism i.e. **branched chain- α keto acid dehydrogenase** which catalyses decarboxylation of branched chain amino acids.
- As a result, the branched chain amino acids, leucine, isoleucine and valine, and their α -keto acids accumulate in blood, urine and CSF.
- There is characteristic maple syrup odor to the urine.
In maple syrup urine disease there is excretion of branched chain amino acids (*isoleucine*, *leucine*, *valine*) and their keto acids (α -keto β -methylvalerate, α -ketoisocaproate, α -ketoisovalerate) in urine.

183. Which of the following are Pyrimidine bases?

a) Adenine and Guanine

b) Guanine and Cytosine

c) Cytosine and Adenine

d) Thymine and Cytosine

Correct Answer - D

In **DNA** and RNA, Pyrimidine bases form hydrogen bonds with their complementary purines.

Thus, in DNA, the **purines adenine (A) and guanine (G)** pair up with the **pyrimidines thymine (T) and cytosine (C)**, respectively.

In **RNA**, the complement of adenine (A) is uracil (U) instead of thymine (T), so the pairs that form are **adenine: uracil and guanine: cytosine**.

- Two types of bases are found in nucleotides : **(i)** purines and **(ii)** pyrimidines.
 - i) Purines : Two major purine bases found both in DNAs as well as RNAs are (i) adenine (A) and (ii) guanine (G).*
 - ii) Pyrimidines : Three major pyrimidine bases are (i) cytosine (C), (ii) Uracil (U) and (iii) Thymine (T). Cytosine and uracil are found in RNAs and cytosine and thymine are found in DNAs. Uracil is not found in DNAs^Q and thymine is not found in RNAs.*

Ref: Rodwell V.W. (2011). Chapter 32. Nucleotides. In D.A. Bender, K.M. Botham, P.A. Weil, P.J. Kennelly, R.K. Murray, V.W. Rodwell (Eds), Harper's Illustrated Biochemistry, 29e

184. Covalent bond is seen in ?

a) Hydrogen bond

b) Disulphide bond

c) Electrostatic bond

d) Ionic bond

Correct Answer - B

Ans. is 'b' i.e., Disulphide bond [Ref Harper 28th/e p. 9; Basics of molecular biology p. 786]

There are two types of interactions between molecules that stabilize molecular structure ?

1) Covalent bonds: These are the strongest bonds.

Examples are :?

- Peptide bonds
- Disulphide bonds

2) Non-Covalent bonds: These are relatively weak bonds.

Examples are :?

- Electrostatic interactions (ionic bonds or salt bridges)
- Hydrogen bonds
- Hydrophobic interactions
- Van Der Waal's forces (weakest bonds)

185. Which of the following is not a test for amino acids?

a) Biuret test

b) Xanthoproteic reaction

c) Ninhydrin test

d) Molisch's test

Correct Answer - D

Ans. is 'd' i.e., Molisch's test [Ref Chatterjea 5th/e p. 87]

Tests for amino acids are :?

- Ninhydrin test : - All α -amino acids.
- Xanthoproteic reaction : - Aromatic amino acids (Tyrosine, tryptophan, phenylalanine).
- Milan's test (Millon-Nasse reaction): - Tyrosine (phenol group of tyrosine). Therefore millon's test is positive in tyrosinosis.
- Aldehyde test : - Tryptophan (indole ring)
- Hopkins-cole reaction : - Tryptophan (indole ring)
- Sakaguch's reaction : - Arginine (guanidinium group of arginine).
- Sulphur test : - Cysteine (sulphydryl group)
- Nitroprusside test : - Cysteine (sulphydryl group)
- Pauly's test : - Histidine (imidazole group)
- Biuret reaction : - Peptide bond.

186. Which has least density ?

a) LDL

b) Chylomicrons

c) HDL

d) VLDL

Correct Answer - B

Ans. is 'b' i.e., Chylomicrons [Ref: Chatterjea Shinde 8thie p. 445,446]

- HDL :- Has maximum electrophoretic mobility, has maximum density, has minimum lipid content, has maximum protein (apoprotein) content, are smallest in size, has maximum phospholipid, has minimum triglycerides.
- Chylomicrons :- Have no electrophoretic mobility, have minimum density, have maximum lipid content, have minimum protein content, are largest in size, have minimum phospholipids, have maximum triglycerides.

187. Hereditary orotic aciduria Type-I is due to deficiency of ?

a) Orotate phosphoribosyl transferase

b) Orotic acid decarboxylase

c) UMP synthase

d) All of the above

Correct Answer - D

Ans. is 'd' i.e., All of the above

- Orotic aciduria is a hereditary disorder which can result from a defective enzyme in pyrimidine synthesis.
- There is a defect in the multifunctional enzyme UMP synthase which has two activities :?
 - .. Orotate phosphoribosyl transferase
 2. Orotic acid decarboxylase (orotidylate decarboxylase)
- UMP synthase converts orotic acid to UMP. Thus, in defect of UMP synthase orotic acid can not be converted to UMP and is excreted in urine → orotic aciduria.
- There are two types of orotic aciduria.
 - .. Type 1 :- There is deficiency of both the components of UMP synthase, i.e. orotate phosphoribosyl transferase and orotidylate decarboxylase.
 2. Type II :- There is deficiency of only orotidylate decarboxylase.

188. Phospholipids are ?

a) Simple lipids

b) Derived lipids

c) Complex lipids

d) None

Correct Answer - C

Ans. is 'c' i.e., Complex lipids

The most commonly used classification of lipids is Bloor's classification which is based on the chemical composition.

According to this classification lipids are classified as follows :?

A) Simple lipids:- These are esters of fatty acids with glycerol or other higher alcohol. These include:?

- Neutral fats (Triacylglycerol or triglycerides)
- Waxes

B) Compound or complex lipids:- These are fatty acids esterified with alcohol, but in addition they contain other group (prosthetic group). These include phospholipids, glycolipids (glycosphingolipids), lipoprotein.

c) Derived lipids:- Derived lipids include compounds (products) obtained after the hydrolysis of simple or compound lipids which possess the characteristics of lipids, eg. fatty acid, steroids, cholesterol, Lipid soluble vitamins and hormones, prostaglandins, leukotrienes, terpens.

189. None Not seen in alpha helix ?

a) Alanine

b) Leucine

c) Proline

d) Isoleucine

Correct Answer - C

Ans. is 'c' i.e., Proline [Ref: Harper 28th le p. 33]

- Proline is never found in α -helix as it has imino group (-NH) not amino (-NH₂).
- Thus it cannot provide hydrogen for hydrogen bonding, the major stabilizing force of α -helix.
- Glycine also tends to disrupt α -helix; because of its high flexibility and small size it often induces bends in α -helix.

190. Which of the following is not an oxidoreductase -

a) Catalase

b) Glucokinase

c) Alcohol dehydrogenase

d) Peroxidase

Correct Answer - B

Ans. is 'b' i.e., Glucokinase [Ref: Chatterjee 8th le p. 123; Harper 28th le p. 52]

- Oxidoreductases are oxidases, dehydrogenases, hydroperoxidases (Catalase, peroxidase), oxygenases.
- Glucokinase is a transferase.

191. Albumin and globulin are classified as:

a) Conjugated proteins

b) Simple globular proteins

c) Unconjugated proteins

d) Derived proteins

Correct Answer - B

B i.e. Simple globular protein

Plasma proteins like *albumin and globulin* are simple globular proteinQ

192. proteins Pyridoxine is involved in ?

a) Carboxylation

b) Trans-sulfuration

c) Oxidation-reduction

d) Transketolation

Correct Answer - B

Ans. is 'b' i.e., Trans-sulfuration [Ref Harper 29th le p. 533]

- Pyridoxine is involved in transamination, deamination, decarboxylation, condensation and trans-sulfuration.

193. Transketolation mRNA is complementary to ?

a) Coding strand

b) Non-template strand

c) Non-coding strand

d) Sense

Correct Answer - C

Ans. is 'c' i.e., Non-coding strand [Ref Essentials Biochemistry p. 812]

- DNA is a double-stranded molecule. Each strand is a polymer of nucleotides (deoxyribonucleotides). Each strand possesses a polarity. It has a 3' end and a 5' end. The two strands are antiparallel, i.e. they are parallel but run in opposite directions.
- The DNA 'sense (coding) strand' itself is not used to make protein. It is the DNA antisense (non-coding) or template strand which serves as the source for protein code, because, it is used as a template for the mRNA. Since transcription result in formation of mRNA which has base sequence complementary to template strand, its base sequence is same as for coding (non-template) strand.
- mRNA is used for translation (protein synthesis). So, **mRNA is a complementary copy of template strand** (non coding) and is exactly similar to non-tempelate (coding) strand, except. Uracil is there instead of thymine.

194. strand Hydrophobic amino acid is ?

a) Alanine

b) Tyrosine

c) Glycine

d) Histidine

Correct Answer - A

Ans. is 'a' i.e., Alanine [Ref Vasudevan 6th le p. 20-24; Harper 28th le p. 15-20]

Polar (hydrophilic) amino acids

- Negatively charged (acidic) :- Aspartic acid (aspartate), glutamic acid (glutamate)
- Positively charged (basic) :- Histidine, lysine, arginine
- Uncharged (neutral) :- Asparagie, Cysteine, glycine, glutamine, serine, threonine, tyrosine

Non-polar (hydrophobic) amino acids

- **With** aliphatic chain :- Alanine, isoleucine, leucine, methionine, proline, valine
- With aromatic side chain :- Phenylalanine, tryptophan
- Tyrosine and cysteine may show hydrophobic (non-polar) character when present in the interior of protein

195. Which receptors are present in liver for uptake of LDL:

a) Apo E

b) Apo A and Apo E

c) Apo E and Apo B100

d) Apo B100

Correct Answer - C

C i.e. Apo E and Apo B100

Liver and many extra hepatic tissues express *LDL (apo- B-100 and E) receptors*. LDL receptors are present on *cell membrane pits coated with clathrin (protein) on the cytosolic side*; and taken into the *cell by endocytosis* (after binding LDL). And cholesterol present in LDL, on accumulation in the cell *inhibits replenishment (recruitment i.e. transcription) of LDL receptors via SREBP pathway*.

Increased cellular cholesterol coordinately suppress cholesterol synthesis (by inhibiting HMG Co A synthase, HMG CoA reductase etc enzymes) *as well as uptake (by down regulating synthesis of LDL receptors)*; whereas cholesterol esterification is promoted (by stimulating ACAT activity). Thus the LDL receptor activity on cell surface is *regulated by cholesterol requirement for membranes, steroid hormones or bile acid synthesis*

196. Nucleoside is made up of:

1. Pyrimidine
2. Histone
3. Sugar
4. Purine
5. Phosphate

a) 1,2 & 3

b) 1,3 & 4

c) 1,3 & 5

d) 2,3 & 4

Correct Answer - B

“The nucleoside is composed of purine or pyrimidine base linked to either D-ribose (in RNA) or D-2- deoxyribose (in DNA)”

“The nuclear DNA is found bounded to basic proteins called histones”.

Nucleotides

- Nucleotides are nucleoside +P
- The Phosphodiester bond between the nucleotides is formed mainly between 3'OH group of sugar of one nucleotide to 3'OH group of sugar of another nucleotide.

Ref: Harper 27/e, Page 297; Chatterjee & shinde 7/e, Page 206-07.

197. Enzyme marker for pancreas ?

a) CPK

b) Amylase

c) SGOT

d) ALt

Correct Answer - B

Ans. is 'b' i.e.,Amylase [Ref Chatterjee Shinde 7¹Ve p. 600-605]

198. Uric acid is formed in humans in -

a) Liver

b) GIT mucosa

c) Kidney

d) Joints

Correct Answer - B

Ans. is 'b' i.e., GIT mucosa [Ref Dinesh puri 3rd/e p. 429]

- Uric acid is produced in intestinal mucosal cells from dietary purines.
- The sources of purine nucleotides in the body are :?
 1. Synthesis of purine rings by body itself.
 2. Presense of purines in diet (dietary purines).
- this the usual source of purines also pyrimidines for the use of body.
- Human body is capable of synthesizing the purine and the pyrimidine rings de novo (anew) and also by salvaging (recycling) the nitrogenous bases arising from degradation of nucleic acid.
- Brain, RBCs and polymorphonuclear leucocytes cannot produce purines by de novo synthesis. Almost all other cells can produce purines by de novo synthesis

199. For conversion of aspartate to asparagine, nitrogen comes from ?

a) Alanine

b) Glutamate

c) Glutamine

d) Histidine

Correct Answer - C

Ans. is 'c' i.e., Glutamine

Synthesis of asparagine from aspartate is catalyzed by asparagine synthetase.

Donor of amide group (containing nitrogen) in this reaction is glutamine.

200. APO B48 & APO B100 is synthesized from the same rnRNA; the difference between them is due to:

a) RNA splicing

b) Allelic exclusion

c) Deamination of cytidine to uridine

d) Upstream repression

Correct Answer - C

C i.e. Deamination of cytidine to uridine IRef: Vasudevan

- **Least post translational modification** occurs in **prokaryotic mRNA**, which is generally identical to its primary transcript. Post translational modification of t-RNA includes removal of introns from anticodon loop, trimming of 5' & 3' **ends**, **methylation** / reduction / deamination / alkylation / rearranging glycosidic bond to produced modified bases like methylated bases, dihydrouracil (D) & pseudo uracil (W) bases in nucleus, whereas cleavage and attachment of CCA tailing occur in cytoplasmQ.
- In RNA, gene during processing undergoes nucleoside modifications, nucleoside cleavage and terminal addition but not chemical hydrolysisQ.
- Post translational modification of mRNA involves 5' capping , 3' polyadenylation (addition of poly 'A' tail at 3' end), splicing (removal of non coding intervening or intron sequences and ligation / joining of coding exons) by Sn RNA/ Sn RNPs / Snurps or self splicing d/t ribozyme activity of self splicing introns with formation of lariat intermediates, RNA editing and secondary methylationQ.
- Apo B-48 and Apo B-100 are synthesized from same Apo B gene

and same ApoB- m-RNA. Apo B 100 is a 100 kDa protein synthesized in liver by full length translation of corresponding mRNA of Apo B gene. Apo - B-100 forms part of LDL, IDL and VLDL. Apo B-48 is a 48 KDa protein (48% shorter form of Apo B-100) synthesized in intestine by partial translation of same mRNA of Apo B gene. Apo B 48 forms part of chylomicron & chylomicron remnant. This difference between the sizes of Apo B100 and Apo B48 occurs because post transcriptional processing (editing) of Apo B mRNA , deaminates the cytidine (C) to uracil (U) in intestine at 2153 position. After cyti dine deamination the CAA codon (which codes glutamine in liver) becomes UAA (nonsense or stop codon) in intestine. This results in shorter apo B-48 protein being made in intestine (and incorporated into chylomicron) than is made in the liver full length Apo B-100, incorporated in to VLDL.

201. Methylation Vitamin H is also known as ?

a) Cobalamin

b) Biotin

c) Pyridoxine

d) Folate

Correct Answer - B

Ans. is 'b' i.e., Biotin [Ref Clinical biochemistryrpm P. 123]

- Biotin is also known as vitamin B7 or vitamin H.

202. Complex-I in electron transport chain is ?

a) NADH - CoQ reductase

b) CoQ - cytochrome C reductase

c) Cytochrome-C oxidase

d) None of the above

Correct Answer - A

Ans. is 'a' i.e., NADH - CoQ reductase [Ref Chatterjee er Shinde 7th /e p. 134]

Components of ETC are :?

1. Complex I (NADH - CoQ reductase) catalyzes the transfer of electron from NADH to coenzyme Q (CoQ).
2. Complex II (Succinate - CoQ reductase or succinate dehydrogenase) transfers electrons from succinate to coenzyme Q.
3. Complex III (CoQ - cytochrome C reductase), transfers electron from CoQ to cytochrome C.
4. Complex IV (cytochrome C oxidase) transfers electrons from cytochrome C to O₂.

203. Which is an omega-9 fatty acid ?

a) Arachidonic acid

b) Oleic acid

c) Linolenic acid

d) Cervonic acid

Correct Answer - B

Ans. is 'B i.e., Oleic acid [Ref Harper 28"/e p. 123]

204. Thermogenin is present in ?

a) Cytoplasm

b) Mitochondria

c) Ribosome

d) Nucleus

Correct Answer - B

Ans. is 'b' i.e., Mitochondria [Ref Vasudevan p. 234, 235; Essentials Biochemistry p. 333]

- **Thermogenin is found in mitochondria of brown adipose tissue.**
- **Thermogenin is an uncoupler protein present in brown adipose tissue (brown fat).**
- **It uncouples oxidation and phosphorylation by acting as a channel for H^+ ions so that hydrogen ion gradient cannot build up.**
- **Oxidation occurring in brown adipose tissue without generation of ATP results in production of heat.**

205. Electron microscopy change in reversible cell injury is ?

a) Cell shrinkage

b) Plasma membrane blebbing

c) fatty change

d) Fragmentation

Correct Answer - B

Answer- B. Plasma membrane blebbing

The ultrastructural changes (seen on electron microscopy) are :-

- 1. Plasma membrane alterations → Blebbing blunting loss of microvilli.**
- 2. Mitochondrial changes → Swelling, small amorphous densities.**
- 3. Dilatation of ER and detachment of ribosome**
- 4. Nuclear alterations**

206. Which is activated for nuclear fragmentation in apoptosis -

a) Caspases

b) Apaf - 1

c) Oxygen free radicals

d) All

Correct Answer - A

Ans is 'a' i.e., Caspases

o Caspases and endonuclease cause chromatin fragmentation in apoptosis.

o They are inactive, so first they should be activated.

o Cytochrome 'c' binds with Apaf-1 and this complex activates caspases.

o Caspases cause fragmentation of chromatin and also activate endonuclease.

About option 'b'

o Though Apaf-1 helps in activation of caspases, it has no role in chromatin fragmentation and It does not have two separate forms active or inactive. It just forms complex with cytochrome 'C' to activate caspases.

207. Apoptotic bodies are ?

a) Pyknotic nucleus with organelles

b) Opened up chromatin bodies

c) Membrane bound cytoplasm without organelles

d) Clumped chromatin bodies

Correct Answer - A

Answer- A. Pyknotic nucleus with organelles

Important apoptotic bodies are :-

- 1. Civatte bodies or colloid bodies in lichen planus.**
- 2. Sunburn cells**
- 3. Kamino bodies in melanocytic lesions**
- 4. Satellite dyskeratotic cells**
- 5. Councilman bodies in acute viral hepatitis**
- 6. Eosinophilic globules**
- 7. Tingible bodies (found in macrophages) in lymphoma**

208. All are factors of poor wound healing except -

a) Young age

b) Infection

c) Zinc deficiency

d) Vitamin D deficiency

Correct Answer - A

Answer- A. Young age

Systemic factors

- 1. Poor nutrition (protein deficiency, vitamin C deficiency)**
- 2. Metabolic abnormalities (Diabetes mellitus).**
- 3. Poor circulatory status (Inadequate blood supply)**
- 4. Hormones, e.g. glucocorticoids**

B. Local factors

- 1. Infection is the single most important factor.**
- 2. Mechanical factors, e.g. early mobilization.**
- 3. Foreign bodies (unnecessary sutures, fragments of steel or glass).**
- 4. Wound in poorly vascularized area, e.g. foot.**

209. In muscle hypertrophy alpha myosin changes to ?

a) Beta

b) Gamma

c) Theta

d) Delta

Correct Answer - A

Answer- A. Beta

- **During muscle hypertrophy the alpha isoform of myosin heavy chain is replaced by the beta isoform, which has a slower, more energetically economical contraction.**

210. Absence of Ultra hepatic bile duct leads to which syndrome?

a) Von Meyenburg Complexes

b) Polycystic Liver Disease

c) Caroli Disease

d) Alagille Syndrome

Correct Answer - D

Answer- D. Alagille Syndrome

- **It is an autosomal recessive condition characterized by absence of bile ducts in portol tract,**

211. Onion bulb appearance on nerve biopsy is seen in -

a) Amyloid neuropathy

b) Diabetic neuropathy

c) CIDP

d) Leprous neuritis

Correct Answer - C

Ans. is 'c' i.e., Chronic inflammatory demyelinating polyneuropathy (CIDP)

Chronic inflammatory demyelinating polyneuropathy (CIDP)

- **Chronic inflammatory demyelinating polyneuropathy (CIDP, also known as chronic inflammatory demyelinating polyradiculoneuropathy) is an acquired disorder of peripheral nerves and nerve roots.**
 - o **Although the cause of CIDP and its variants is unknown, there is evidence to support the hypothesis that the disorder are immunologically based and have multiple triggers.**
 - o **The characteristic pathologic features of CIDP include segmental demyelination and remyelination, and "onion bulb" formation.**

The term "onion- bulb formation" refers to the appearance of affected nerves when viewed under the microscope in transverse section.

As a result of repeated episodes of demyelination

and remyelination, such nerves are enlarged due to whorls of overlapping and proliferating Schwann cell processes encircling bare axons. Some degree of axonal degeneration is usually present as well.

Clinical manifestations

- o The classic form of CIDP is fairly symmetric and motor involvement is greater than sensory.
 - o Weakness is present in both proximal and distal muscles, and this pattern is a hallmark of acquired demyelinating polyneuropathy.
 - *Cranial nerve and bulbar involvement occur in 10 to 20 percent of patients.*
 - o Most patients with CIDP also have sensory involvement and globally diminished or absent reflexes.
 - o Constipation and urinary retention are usually early symptoms of CIDP, but may occur in more severe cases.
 - o Most patients with CIDP exhibit a slowly progressive course, but a relapsing-remitting course is noted in at least one-third, and may be more common in younger patients.
- #### Electrophysiology
- o *Peripheral nerve demyelination underlies the characteristic electrophysiologic features of CIDP, which are as follows :-*
 - LI Partial conduction block
 - Conduction velocity slowing
 - Prolonged distal motor latencies
 - Delay or disappearance of F waves
 - o Dispersion and distance dependent reduction of compound motor action potential (CMAP) amplitude.

212. Heroin abuse causes ?

a) Focal segmental glomerulonephritis

b) Crescent glomerulonephritis

c) Membranous glomerulonephritis

d) Diffuse glomerulonephritis

Correct Answer - A

Answer- A. Focal segmental glomerulonephritis

Clinically it presents as nephrotic syndrome.

Causes

- 1. HIV infection**
- 2. Heroin addiction**
- 3. Sickle cell disease**
- 4. Massive obesity**
- 5. IgA nephropathy**
- 6. Reflux nephropathy**
- 7. Idiopathic**

213. True regarding light microscopy changes in minimal change disease:
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a) Loss of foot process

b) Anti-Glomerular basement membrane antibodies seen

c) IgA deposits

d) No change seen

Correct Answer - D
Ans. D i.e. No change seen

214. Clear cell renal carcinoma is due to ?

a) 3p deletion

b) 3q deletion

c) 6p deletion

d) 9p deletion

Correct Answer - A

Answer- A. 3p deletion

- **Clear cell- cell origin (proximal tubule)- 3p deletions (3p-), VHL gene mutations, 5q gains**

215. Parents are carrier of an autosomal recessive disorder. Chances of offspring to get affected?

a) 1 : 1

b) 1 : 2

c) 1 : 3

d) 1 : 4

Correct Answer - D

Ans. is 'd' i.e., 1:4

- **If both parents are carrier, there are 25% chance (1 in 4) that the child will be affected.**

216. Which of the following is inherited as autosomal recessive form?

a) Sickle cell anemia

b) Hemophilia

c) Hereditary spherocytosis

d) Glucose 6-PO4 dehydrogenase deficiency

Correct Answer - A

Sickle cell anemia REF: Harrison's 17ed chapter 101

- Sickle cell anemia — AR
- Hemophilia — XLR
- Hereditary spherocytosis — AD
- G6PD deficiency — XLR

217. Acrodermatitis enteropathica is inherited as?

a) X-linked recessive

b) X-linked dominant

c) Autosomal recessive

d) Autosomal dominant

Correct Answer - C

Answer- C. Autosomal recessive

Acrodermatitis enteropathica is inherited as an autosomal recessive disorder.

- Cystic fibrosis
- Phenylketonuria
- Galactosemia
- Homocystinuria
- Lysosomal storage disease.
- alpha 1-antitrypsin deficiency
- Wilson disease
- Hemochromatosis
- Glycogen storage disorders
- Acrodermatitis enteropathica

218. Which of the following gene defect is associated with development of medullary carcinoma of thyroid?

a) RET Proto Oncogene

b) Fap gene

c) Rb gene

d) BRCA 1 gene

Correct Answer - A

Ans. is 'a' i.e., RET proto oncogene

Thyroid carcinoma

o The major types of carcinoma and their relative frequency :?

Papillary carcinoma → 75% to 85% (most common)
Medullary carcinoma → 5%

Follicular carcinoma → 10% to 20%
Anaplastic carcinoma — > <5%

o Most thyroid carcinomas are derived from the follicular epithelium , except for medullary carcinoma which is derived from the parafollicular or 'C' cells .

o Genetic factors in different thyroid carcinoma

o Papillary → o Tyrosine kinase receptors RET or NTRK1

o RAS mutation

o BRAF oncogene

- o Follicular —> o RAS oncogene (NRAS, HRAS and KRAS)**
- o PAX8- PPARr 1 thanslocation**
- o Medullary —> o RET protooncogne.**
- o Familial medullary cancers account for most inherited cases of thyroid cancer.**
- o Familial nonmedullary thyroid cancers (papillary and follicular) are very rare**

219. All of the following are examples of microdeletion syndromes, EXCEPT:

a) Wilms' tumor–aniridia complex

b) Miller Dieker syndrome

c) Velocardiofacial syndrome

d) None of the above

Correct Answer - D

The term *contiguous gene syndrome* refers to genetic disorders that mimic a combination of single-gene disorders.

They result from the deletion of a small number of tightly clustered genes.

Because some are too small to be detected cytogenetically, *they are termed microdeletions.*

The application of molecular techniques has led to the identification of at least 18 of these microdeletion syndromes.

Some of the more common ones include the Wilms' tumor–aniridia complex (WAGR), Miller Dieker syndrome (MDS), and velocardiofacial (VCF) syndrome. *WAGR is characterized by mental retardation and involvement of multiple organs, including kidney (Wilm's tumor), eye (aniridia), and the genitourinary system.*

Ref: Harrison's principle of internal medicine 17th edition, chapter 64.

220. Women carrying BRCA 1 gene are more likely to develop which type of breast carcinoma -

a) Medullary

b) Lobular

c) Colloid

d) Secretory

Correct Answer - A

Ans. is 'a' i.e., Medullary

"Medullary carcinomas and mutinous carcinomas histological types are more commonly found in BRCA 1 carrier".

221. Which blood group is universal donor ?

a) A

b) B

c) O

d) AB

Correct Answer - C

Answer- C. O

- **Blood group'O' → Universal donor**

222. Most common blood group in India is ?

a) A

b) B

c) AB

d) O

Correct Answer - D

Answer- D. O

- **Genotype- OO**
- **Phenotype- O**
- **Indian population- 40%**

223. Cross matching is done with ?

a) Donor's serum and patient's RBC

b) Donor's RBC and patient's serum

c) Donor and patient's serum

d) Donor and patient's RBC

Correct Answer - B

Answer- B. Donor's RBC and patient's serum

- **Cross-matching consists of mixing the patient's serum with donor saline-suspended red cells.**

224. Most common cause for complication of blood transfusion is?

a) Human error

b) Anaphylaxis

c) GVHD

d) Presensitisation

Correct Answer - A

Ans. is 'a' i.e., Human error

The most common cause resulting in complications from blood transfusion is human error

Acute hemolytic reaction resulting from ABO incompatibility is the most serious complication of blood transfusion.

225. Which of the following statements about Hemochromatosis is true:

a) Shows complete penetrance

b) Inherited as an autosomal recessive disorder

c) Phlebotomy is curative

d) More common in Females

Correct Answer - B

Answer is B Inherited as an autosomal recessive disorder
Hereditary Hemochromatosis is essentially inherited as an autosomal recessive condition.

Hereditary Hemochromatosis is essentially an Autosomal Recessive condition

The most common form of hereditary hemochromatosis is related to mutations in *HFE gene*, which is a gene located on the short arm of chromosome 6 and is *FIL* linked

HFE related hereditary hemochromatosis (most common type) is inherited as an autosomal recessive condition

Hereditary Hemochromatosis shows incomplete penetrance

Incomplete penetrance refers to the lack of disease symptoms in an individual despite the presence of pathological gene mutation

Expression of Hemochromatosis is variable and many HFE positive people neither have nor develop disease, thus displaying the phenomenon of incomplete penetrance

This suggests that other genetic and / or environmental

factors modify the pathogenesis of disease Hereditary Hemochromatosis is more common in Men
The clinical expression of disease is 5 –10 times more common in men than women - Harrison Phlebotomy is an effective management option but it does not lead to cure
The therapy of hemochromatosis involves removal of excess body iron which is best accomplished by phlebotomy Phlebotomy is not curative and will be required at appropriate intervals to maintain ferritin levels (usually one phlebotomy every 3 months)' - Harrison

226. Liver finding of child with reye's syndrome is ?

a) Macrovesicular steatosis

b) Microvesicular steatosis

c) Hepatocellular necrosis

d) Noncaseating epithelioid granulomas

Correct Answer - B

Answer- B. Microvesicular steatosis

Reye's syndrome is a metabolic mitochondrial disorder characterized by-

- 1. Microvesicular fatty infiltration of liver**
- 2. Encephalopathy**
- 3. Sometimes fatty infiltration of kidney**

227. When do neutrophils appears in myocardial infarction?

a) Less than 4 hours

b) 4-12 hours

c) 12-24 hours

d) 1-3 days

Correct Answer - C

Answer- C. 12-24 hours

- **12-24 hr- Dark motting- In light microscopy, ongoing coagulative necrosis, marginal contraction band necrosis, beginning if neutrophilic infiltration.**

228. Which of the following is not seen in early phase of myocardial infarction on microscopy ?

a) Coagulation necrosis

b) Edema

c) Hemorrhage

d) Fibrosis

Correct Answer - D

Answer- D. Fibrosis

- **Fibrosis (scarring) occurs late.**
- **Coagulation necrosis, hemorrhage and edema are seen within 4-12 hours.**

229. Which of the following develops from an unerupted tooth?

a) Dental cyst

b) Dentigerous cyst

c) Both of the above

d) None of the above

Correct Answer - B

Dentigerous (follicular) cysts are epithelial-lined, developmental, odontogenic cysts.

Fifteen to eighteen percent of jaws cysts are dentigerous, surround the crowns, and attach at the cemento-enamel junction of unerupted teeth.

The lower third molars and the upper canines are the most commonly involved teeth.

The cyst develops subsequent to an accumulation of fluid between the remnants of the enamel organ and the contiguous tooth crown.

Ref: Smith R.A. (2012). Chapter 25. Jaw Cysts. In A.K. Lalwani (Ed), *CURRENT Diagnosis & Treatment in Otolaryngology—Head & Neck Surgery*, 3e.

230. Adamantinoma usually arise from ?

a) Dental lamina

b) Endodermal tissue

c) Periapical tissue

d) Odontogenic tissue

Correct Answer - D

Answer- D. Odontogenic tissue

- **Ameloblastoma (adamantinoma) : It is a locally aggressive tumour that arises from the odontogenic tissue and invades the maxillary sinus. Treatment is surgical excision**

231. Lymphoid tissue is seen in which parotid tumor -

a) Pleomorphic adenoma

b) Warthins tumor

c) Adenoid cystic

d) Mucoepidermoid

Correct Answer - B

Answer- B. Warthins tumor

- **On microscopic examination, cystic spaces are lined by a double layer of neoplastic epithelial cells resting on a dense lymphoid stroma.**
- **Warthin's tumor is the 2nd most common salivary gland neoplasm (after pleomorphic adenoma).**

232. Warthin's tumor is ?

a) Multifocal and bilateral

b) Multifocal and unilateral

c) Unifocal and bilateral

d) Unifocal and unilateral

Correct Answer - A

Ans. is 'a' i.e., Multifocal and bilateral

233. Which of the following is a immune privileged sites ?

a) Kidney

b) Testis

c) Lung

d) Liver

Correct Answer - B

Answer- B. Testis

- **The term immune privilege refers to the phenomenon where tissue allografts transplanted to certain anatomical sites appear exempt from the rules that normally govern graft rejection**

234. Most common ovarian tumor in young lady is ?

a) Dysgerminoma

b) Ovarian Mucinous Cystadenocarcinoma

c) Ovarian Serous Cystadenocarcinoma

d) Fibroid

Correct Answer - A

Ans. is 'a' i.e., Dysgerminoma

Dysgerminoma is the ovarian counterpart of testicular seminoma.

Dysgerminomas account for about 2% of ovarian cancers and roughly 50% of malignant ovarian germ cell tumors.

They may occur in childhood, but 75% occur in the second and third decades of life.

They are usually unilateral.

All dysgerminomas are malignant.

They are extremely radiosensitive.

235. Pseudohypertrophy is seen in ?

a) Duchenne muscular dystrophy

b) Fascio scapulohumeral dystrophy

c) Emery Dreifuss muscular dystrophy

d) Myotonic dystrophy

Correct Answer - A

Ans. is 'a' i.e., Duchene muscular dystrophy

Duchene muscular dystrophy

- **Boys with Duchenne muscular dystrophy are normal at birth. Very early motor milestones are met, but walking is often delayed.**
- **The first indications of muscle weakness are clumsiness and inability to keep up with peers. Weakness begins in the pelvic girdle muscles and then extends to the shoulder girdle**
- **Enlargement of the muscles of the lower leg associated with weakness, *termed***

236. Which is not related to immunity ?

a) MPGN

b) PSGN

c) Diabetic nephropathy

d) IgA nephropathy

Correct Answer - C

Ans. is 'c' i.e., Diabetic nephropathy

The manifestation of chronic diabetes on kidneys is a result of the increased levels of blood glucose levels and are not immune mediated.

237. Tau protein seen in ?

a) Alzheimer's disease

b) Lewy body dementia

c) Pick's disease

d) Amyloidosis

Correct Answer - A

Ans. is 'a' i.e., Alzheimer's disease

Alzheimer's disease :?

- **There is atrophy of frontal and temporal lobes to variable extent and severity.**
- **The pattern of atrophy can often be predicted in part by the clinical symptomatology.**
- **The atrophic regions of cortex are marked by neuronal loss, gliosis, and the presence of tau-containing neurofibrillary tangles**

238. Leiomyosarcoma most common age group is -

a) 20 - 40 years

b) 30 - 50 years

c) 40 - 60 years

d) 50 - 70 years

Correct Answer - C

Ans. is 'c' i.e., 40 - 60 years

Leiomyosarcomas occur both before and after menopause, with a peak incidence at 40 to 60 years of age.

239. What is the most commonly involved in carcinoma colon -

a) Caecum

b) Rectosigmoid colon

c) Transverse colon

d) Ascending colon

Correct Answer - B
Ans. is `b' Rectosigmoid colon

240. Which of the following statements is true of hereditary spherocytosis -

a) About 50% of affected infants have moderately severe neonatal jaundice

b) Diagnosis can be made in neonatal period easily by examination of a blood film

c) Intra vascular hemolysis is a common feature

d) The disorder is usually due to autosomal recessive inheritance

Correct Answer - A

Ans. is 'a' i.e., About 50% of affected infants have moderately severe neonatal jaundice

241. Grafting done between genetically different individuals of same species is ?

a) Autograft

b) Allograft

c) Isograft

d) Xenograft

Correct Answer - B
Ans. is b i.e., Allograft

242. H pylori causes all except

a) Antral gastritis

b) Gastric carcinoma

c) Atrophic gastritis

d) GIST

Correct Answer - D

Answer- D. GIST

- **H pylori is associated with > 80% of duodenal ulcers and > 60% of gastric ulcers.**
- **It also produces atrophic gastritis, gastric adenocarcinoma and MALTomas (GI B-cell lymphoma).**

243. Which of the following is true about pleomorphic adenoma except ?

a) Most common tumor of salivary glands

b) Has a tendency to invade perineural space

c) Most commonly involves the parotid gland

d) It is also called a mixed tumor

Correct Answer - B

Pleomorphic adenoma

- This is the Commonest neoplasm of Salivary glands.
- The most Common salivary gland involved is Parotid - represent about 60% tumors in the parotid. o Submandibular and minor salivary glands may also be involved rarely.
- Pleomorphic adenoma → Parotid > Submandibular > minor salivary glands.
- They are derived from a mixture of ductal (epithelial) and myoepithelial cells and therefore they show both epithelial and mesenchymal differentiation - Also called mixed tumor.

244. Thyroglossal cyst may occasionally give rise tocarcinoma ?

a) Papillary

b) Medullary

c) Anaplastic

d) Follicular

Correct Answer - A
Ans. is 'a' i.e. Papillary

245. Most common type of class II mutation in cystic fibrosis is

a) Missense mutation

b) Frameshift

c) Non sense

d) Deletion

Correct Answer - D

Ans. D. Deletion

- **Class II mutation : 'Deletion' of phenylalanine amino acid so CFTR protein fails to reach cell membrane**

**246. All are seen in Hemolytic anemia
except:**

a) Hemosiderinuria

b) Reticulocytosis

c) Spherocytosis

d) Increased haptoglobin

Correct Answer - D

Answer is D (Increased Haptoglobin)

Hemoglobin binding proteins such as Haptoglobin are reduced or absent.

Characteristic features of Hemolytic Anemia:

Increased red cell breakdown

- **Serum bilirubin is \uparrow^{ed} (unconjugated bilirubin \uparrow^{ed})**
- **Urine urobilinogen is \uparrow^{ed}**
- **Fecal stercobilinogen is \uparrow^{ed}**
- **Hemoglobinemia / Hemoglobinuria**
- **hemosiderinuria**
- **Hemoglobin binding proteins such as Haptoglobin and Hemopexin are reduced or absent.**
- **Plasma Lactic dehydrogenase (LDH) is**

Compensatory increase red cell production

Reticulocyte count is

Routine blood film shows a variety of abnormal

Routine blood film shows a variety of abnormal morphological types of red cells

- Schistocytes

- Spherocytes^Q etc.

Bone marrow shows erythroid hyperplasia with raised iron stores. X Rays of bones show :

Evidence of expansion of marrow space, especially in tubular bones & in skull - Bossing of skull()

247. The most common antecedent of erythroplakia and leukoplakia is

a) Diphtheria

b) Tobacco use

c) Alcohol

d) Poor oral hygiene

**Correct Answer - B
Answer- B. Tobacco use**

248. Most common site of gastrointestinal carcinoid is -

a) Duodenum

b) Appendix

c) Ileo-Jejunum

d) Stomach

Correct Answer - C

Answer- C. Ileo-Jejunum

- **Carcinoid tumors arise from the neuroendocrine cells (Argentaffin cells or Kulchitsky cells).**
- **The majority are found in GI tract, and more than,10% in small intestine (jejunum & ileum).**
- **The tracheobronchial tree and lungs are the next common sites involved.**

249. True about kartagener's syndrome -

a) Dextrocardia

b) Infertility

c) Mental retardation

d) a and b

Correct Answer - D

Ans. is 'a' i.e., Dextrocardia; 'b' Infertility

sperm

251. PSGN (post strept. GN) asso. with ?

- a) Subepithelial deposits
- b) Nephritis along with acute Renal failure
- c) Low complement levels
- d) All

Correct Answer - D

Ans. 'a' i.e., Subepithelial deposits; 'b' i.e., Nephritis along with acute renal failure; 'c' i.e., Low complement levels
PSGN appears 1 to 4 weeks after a streptococcal infection of pharynx or skin (impetigo).

o Occurs most frequently in children 6 to 10 years of age, but adults any age can be affected.

o The lesions are caused by immune complex deposition and activation of complement --> *Complement level decreases*

(C_3 and CH_{50} are decreased with normal C_4) -->

Complement level returns to normal in 6-8 weeks.

o Clinically child presents with acute nephritic syndrome, i.e. hematuria, *oliguric acute renal failure*, azotemia, *proteinuria, hypertension & edema.*

Remember

PSGN causes acute renal failure, but not chronic renal failure —) More than 95% of affected children eventually recover totally with conservative therapy.

252. Wilm's tumor associated with all except

a) WAGR

b) Beckwith Weidman

c) Dennis dash

d) Digeorge syndrome

Correct Answer - D

Answer- D. Digeorge syndrome

These are -

- **WAGR syndrome**
- **Denys - Drash syndrome**
- **Beckwith - Wiedeman syndrome**

253. Prostatic carcinoma commonly arises from:
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a) Central zone

b) Peripheral zone

c) Transitional zone

d) None of the above

Correct Answer - B

Ans: B i.e. Peripheral zone

Zones of prostate & clinical importance

- **Central zone (CZ) lies posterior to the urethral lumen & above the ejaculatory ducts.**
- **Peripheral zone (PZ) lies posteriorly & from this, most carcinoma arises**
- **There is a periurethral transitional zone (TZ), from which most benign prostatic hyperplasia (BPH) arises.**

254. Which of the following is true about Reidel's thyroiditis

a) Fibrosis involves the thyroid and surrounding neck structures

b) Patient presents with hard fixed thyroid mass

c) It may be associated with retroperitoneal fibrosis

d) All the above

Correct Answer - D

Answer- D. All the above

- **A rare disorder characterized by extensive fibrosis involving the thyroid and contiguous neck structures.**
- **The presence of a hard and fixed thyroid mass clinically simulates a thyroid carcinoma.**
- **It may be associated with fibrosis in other sites in the body such as the retroperitoneum, and appears to be another manifestation of a systemic autoimmune IgG4-related disease, which is associated with fibrosis and tissue infiltration by plasma cells producing IgG4.**

255. Tense and painful thyroiditis is

a) Dequervian's thyroiditis

b) Riedel thyroiditis

c) Hashimoto thyroiditis

d) Subacute lymphocytic thyroiditis

Correct Answer - A

Answer- A. Dequervian's thyroiditis

- **Dequervain thyroiditis (granulomatous thyroiditis) → Most common cause of thyroid pain.**

256. Smoking is not a risk factor for

a) Lung carcinoma

b) Osteoporosis

c) Nonunion of bones

d) Alzhiemers disease

Correct Answer - D

Answer- D. Alzhiemers disease

- **"Recent research has shown that smoking is a signficant risk factor for vascular dementia and Alzheimer's disease, with smokers twice as likely to develop the disease as non-smokers".**

257. Find the wrong match :

a) Brenner's tumor - puffed wheat nuclei

b) Krukenberg tumor - Signet ring appearance

c) Granulosa cell tumor - Cell exner bodies

d) Gonadoblastoma - Reinke's crystals

**Correct Answer - D
Gonadoblastoma - Reinke's crystals**

258. FFP is stored at what temperature ?

a) 2 - 4degrees Celsius

b) 0 - (-25) degrees celsius

c) Below (-25) degrees Celsius

d) 2 - 10 degrees Celsius

Correct Answer - C

Ans. is 'c' i.e., Below (-25) degrees Celsius

Fresh frozen plasma must be stored in blood bank at or below -25 degrees celsius till it is thawed before transfusion.

Most of the clotting factors are stable at refrigerator temperature but factors V and VIII require temperatures less than - 25 degrees Celsius.

**259. Which of the following is not seen in
Tuberous sclerosis ?**

a) Shagreen patch

b) Adenoma sebacecum

c) McCollon Plaques

d) Depigmented nevi

Correct Answer - C

Ans. is 'c' i.e., McCollon Plaques

260. Gene affected in Ewings sarcoma is ?

a) EWS-FLI 1

b) PAX 3

c) EWS ATF 1

d) FUS-CHOP

Correct Answer - A
Ans, is 'a' i.e., EWS FLI 1

261. Which of the following matches is incorrect ?

a) Aromatic amines bladder cancer

b) Schistosomiasis bladder cancer

c) Benzene Leukemia

d) Nitrates Skin cancer

Correct Answer - D

Ans. is `d' i.e., Nitrates - skin cancer

"Human papilloma virus is the most common etiological factor for cervical cancer."

Environmental factors in cancer

- **There is strong correlation between environmental and geographic factors in carcinogenesis.**
- **Environmental factors are *generally held responsible for 80-90% of all human cancers.***

262. What is the type of inhibition of acetylcholinesterase caused by organophosphates?

a) Competitive and reversible

b) Noncompetitive and irreversible

c) Uncompetitive and reversible

d) Competitive and irreversible

Correct Answer - D

Ans: D. Competitive and irreversible

(Ref Goodman Gillman 12/e p242; Katzung 13/e p115, 12/e p106; KDT 7/e p99)

Inhibition type:

- Of acetyl cholinesterase by organophosphates - Competitive & irreversible.
- Of acetyl cholinesterase by carbamates - Competitive & reversible.

MOA:

- Both bind at esteratic enzyme site à Competitive inhibition.
- Carbamoyl ester - Differs it to reversible & irreversible.

Anticholinesterases

Reversible

Carbamates

- Physostigmine
- Neostigmine
- Pyridostigmine

Acridine Organophosphate Carbamates

Irreversible

- Dyflos (DFP)
- Echothiophate
- Parathion
- Malathion
- Carbaryl

- Edrophonium • Tacrine • Diazinon (TIK -20) Propoxur
- Rivastigmine • Tabun
- Donepezil • Sarin
- Galantamine • Soman

**263. Fifth generation
cephalosporin ?**

a) Cefepime

b) Ceftaroline

c) Cefpirome

d) Cefprozil

**Correct Answer - B
Ans. is'b'i.e., Ceftaroline**

264. Which of the following is a fourth generation Cephalosporin -

a) Ceftriaxone

b) Cefaclor

c) Cefepime

d) Cefuroxime

Correct Answer - C

Ans. is 'c' i.e., Cefepime

o Cefepime and cefepirome are generation cephalosporins.

265. Which of the following is a Ketolide antibiotic?

a) Erythromycin

b) Azithromycin

c) Telithromycine

d) Calathromycin

Correct Answer - C

Ans. is 'c' i.e. Telithromycin

[Rel Katzung 12th/e p. 814, 815)

- **Ketolide are new generation macrolides, which are semisynthetic 14-membered-ring macrolides.**
- **Telithromycin is the first ketolide antibiotic to enter clinical use.**

266. In control of pertussis, the drug of choice for cases?

a) Erythromycin

b) Ciprofloxacin

c) Tetracycline

d) Penicillin

Correct Answer - A

Ans. is 'a' i.e., Erythromycin

Control of whooping cough

o Control of whooping cough requires :?

1) Management of cases and contacts

2) Prevention by active immunization

Cases: *Erythromycin is the DOC.* Alternatives are ampicillin, tetracyclin & septran.

Contacts : Those who are exposed ---> 10 days erythromycin

267. Which antitubercular agent is associated with side effects as respiratory syndrome, cutaneous syndrome, Flu syndrome and abdominal syndrome:

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a) Isoniazid

b) Rifampicin

c) Pyrazinamide

d) Ethambutol

Correct Answer - B

Ans. B: Rifampicin

During therapy, rifampicin is usually well-tolerated, however, adverse side-effects are common in intermittent rifampicin intake.

- **Respiratory syndrome-breathlessness which may be associated with shock and collapse**
- **Cutaneous syndrome-Flushing, pruritis, rash, redness and watering of the eyes.**
- **Flu syndrome-Chills, fever, headache, malaise and bone pain**
- **Abdominal syndrome-nausea, vomiting, abdominal cramps**
Other include febrile reaction, eosinophilia, leucopenia, thrombocytopenia, purpura, haemolysis and shock, hepatotoxicity and nephrotoxicity.

Gastrointestinal adverse reactions may be severe leading to pseudomembranous colitis.

Neurotoxic effects include confusion, ataxia, blurring of vision, dizziness and peripheral neuritis. A common toxic effect is red skin with orange discolouration of body fluids.

268. Which antitubercular drug inhibits mycolic acid synthesis ?

a) INH

b) Streptomycin

c) Rifampicin

d) Ethambutol

Correct Answer - A

Ans. is'a'i.e., INH

[Rd KDT &e p. 741; Katzung L]th/e p. 826]

- **INH + Inhibits synthesis of mycolic acid which is a component of mycobacterial cell wall.**
- **Pyrazinamide -+ Inhibits synthesis of mycolic acid.**

269. Which of the following fluoroquinolone has broadest spectrum activity against bacteria ?

a) Ciprofloxacin

b) Norfloxacin

c) Trovafloxacin

d) Nalidixic acid

Correct Answer - C

Ans. is 'c' i.e., Trovafloxacin

- **Fourth generation quinolones/fluoroquinolones have broadest spectrum.**
- **These are trovafloxacin, fleroxacin, gemifloxacin, prulifloxacin, sitafloxacin and clinafloxacin.**

270. Antifungal which can be used orally but not iv is?

a) Voriconazole

b) Amphoterecin B

c) Terbinafine

d) None of the above

Correct Answer - C
Ans. is 'c' i.e., Terbinafine

271. Neuropathy caused by INH increases in all except?

a) Uremia

b) Hyperthyroidism

c) Diabetes mellitus

d) Poor nutrition

Correct Answer - B

Ans. is 'b' i.e., Hyperthyroidism

[Ref Katzung 11'h/e p. 1069]

isoniazid induced peripheral neuropathy:

- **Peripheral neuropathy is observed in 10 to 20% of patients given doses greater than 5 mg/kg/d, but it is infrequently seen with the standard 300-mg adult dose.**
- **Peripheral neuropathy is more likely to occur in slow acetylators and patients with predisposing conditions such as malnutrition, alcoholism, diabetes, AIDS, and uremia.**

272. Synergism blockage with neuromuscular blockage is?

a) Vancomycin

b) Tobramycin

c) Erythromycin

d) Amoxycillin

Correct Answer - B

Ans. is 'b' i.e., Tobramycin

- **Some antibiotics potentiate neuromuscular block caused by competitive (non-depolarizing) blockers.**

Eg:

- **Aminoglycosides (e.g. tobramycin)**
- **Tetracyclines**
- **Polypeptide antibiotics**
- **Clindamycin**
- **Lincomycin**

273. Which of the following drugs acts on "motilin" receptors-

a) Erythromycin

b) Tetracycline

c) Norfloxacin

d) Chloramphenicol

Correct Answer - A

Ans. is 'a' i.e., Erythromycin

o Erythromycin stimulates motilin receptors in the GIT- thereby, induces gastric contractions, hastens gastric emptying and promotes intestinal motility.

274. A patient was brought to emergency with complaints of high-grade fever and altered sensorium. He was diagnosed to be suffering from meningococcal meningitis. Which of the following is the most appropriate empirical treatment option?

a) Ceftriaxone

b) Piperacillin—Tazobactam

c) Penicillin

d) Cotrimoxazole

Correct Answer - A

Answer- A. Ceftriaxone

Meningococcal meningitis

Treatment:

- 3rd generation cephalosporin such as cefotaxime or ceftriaxone is DOC for initial therapy
- Prophylaxis: Rifampicin is DOC for meningococcal prophylaxis

ANTIBIOTIC RECOMMENDATIONS FOR BACTERIAL MENINGITIS:

BACTERIA	ANTIBIOTIC(IV)	DURATION
Streptococcus Pneumonia	Vancomycin+3rd gen. Cephalosporin(Cefotaxime or ceftriaxone)	10-14 days

	ceftriaxone)	
Nisseria meningitidis	3rd gen. Cephalosporin(Cefotaxime or ceftriaxone) or Penicillin G or Ampicillin	5-10 days
H.influenza	3rd gen. Cephalosporin(Cefotaxime or ceftriaxone)	7-10 days
Listeria monocytogens	Penicillin G or Ampicillin ± Aminoglycocide	14-21 days
GBS	Penicillin G or Ampicillin ± Aminoglycocide	14-21 days
E.coli	3rd gen. Cephalosporin(Cefotaxime or ceftriaxone)	21 days

275. Giardiasis true is all except ?

a) Diarrhea with steatosis

b) Bloody diarrhea

c) Metronidazole is the drug of choice

d) Absent fever

Correct Answer - B

Ans. is 'b' i.e., Bloody diarrhea

Giardiasis

- Most of the infected patients are asymptomatic.
- Giardia causes diarrhea and malabsorption. Malabsorption is due to *loss of brush border enzyme activities*, which cause fat malabsorption (*steatorrhea*) and vitamin deficiency.
- There may be *abdominal pain*, bloating, *nausea & vomiting*, *flatulence* and flatus.
- The mechanisms by which Giardia causes alteration in small bowel function are largely unknown. Although trophozoites adhere to the epithelium, *they do not cause invasive or locally destructive alterations*.
- *Fever, the presence of blood or mucus in the stools suggest a different diagnosis as all these are absent in giardiasis*.
- *Giardia may also cause traveller's diarrhea*.
- Predisposing conditions to giardiasis are agammaglobulinemia, *common variable immunodeficiency*, and selective IgA-deficiency.

Diagnosis and treatment

- ***The gold - standard for diagnosis of giardiasis is microscopic demonstration of the trophozoite, cyst or both in faeces.***
- **Duodenal aspirate or jejunal biopsy may be required for diagnosis.**
- **In acute giardiasis trophozoites show the typical "falling-leaf" motility in wet mount examination of faeces. o**
Metronidazole and tinidazole are drug of choice for Giardia lamblia.

276. Mechanism of action of theophylline in Bronchial asthma include all of the following Except ?

a) Phosphodiesterase inhibition

b) Adenosine receptor antagonism

c) Increased histone deacetylation

d) Beta-2 receptor stimulation

Correct Answer - D

Ans. is 'd' i.e., Beta-2 receptor stimulation

Proposed mechanisms of action of theophylline

- ***Phosphodiesterase inhibition (Non selective)***
- ***Adenosine receptor antagonism (A_1 , A_2)***
- ***Increased histone Deacetylase activity (\uparrow red efficacy of corticosteroids)***
- ***Inhibition of intracellular calcium release***
- ***Stimulation of catecholamine release***
- ***Inhibition of NF - α Beta translocation into the nucleus (nuclear translocation)***
- ***Mediator inhibition (Prostaglandins, TNF α)***

277. Doxapram is _____ drug-

a) Respiratory stimulant

b) Antiepileptic

c) Sedative

d) Antidiabetic

Correct Answer - A

Ans. is 'a' i.e., Respiratory stimulant

Doxapram

o A respiratory stimulant (analeptic).

o It acts by promoting excitation of central neurons.

o At low doses it is more selective for respiratory centre than other analeptics.

o Respiration is also stimulated by aortic and carotid body chemoreceptors.

Also know

o Modafinil - It is a recently introduced psychostimulant used in narcolepsy, sleep apnoea syndrome and shift-work sleep disorder.

278. Bisphosphonates are not used in?

a) Hypercalcemia

b) Osteoporosis

c) Cancer induced osteolysis

d) Vitamin D intoxication

Correct Answer - D
Ans. is `d' Vitamin D intoxication

279. Which of the following drug causes osteonecrosis by giving IV route?

a) Zolendronate

b) Dalteparin

c) Calcitriol

d) Zidovudine

Correct Answer - A

Ans. is 'a' i.e., Zolendronate

o Bisphosphonates (e.g. zolindronate) can cause *osteonecrosis of jaw*.

280. All of the following statements about hormone replacement therapy (HRT) are true except ?

a) It increases the risk of coronary artery disease

b) It increases bone mineral density

c) It increases the risk of breast cancer

d) It increases the risk of endometrial cancer.

Correct Answer - D

Ans. is 'd' i.e., It increases the risk of endometrial cancer.

- **Hormone replacement therapy increases the risk of MI (coronary artery disease). The increased risk is attributed to progestin component.**
 - o **HRT restore Ca^{++} balance, further bone loss is prevented and the excess fracture risk is nullified.**
 - o **There is a higher incidence of breast cancer.**
 - o **Risk for endometrial carcinoma is not increased as protective effect of progestin nullify the carcinogenic effect of estrogen.**
 - o **There is increased risk for gall stone and migraine.**
 - o **There is a small protective effective of HRT on colorectal cancer.**
- Note :?**
- o **Usually in HRT combination of estrogen and progestin is given (combined HRT), except in hysterectomized women where estrogen alone is given.**
 - o **With estrogen alone there is increased risk of endometrial cancer and decrease risk of coronary artery**

endometrial cancer and decrease risk of coronary artery disease (as estrogen increases HDL and decreases LDL and triglyceride level).

o So for HRT with estrogen alone the answer of this question will change. In that case it will be option 'a' i.e., increased risk of coronary artery disease.

281. Finasteride is a:

a) 5 alpha reductase inhibitor

b) PDE inhibitor

c) Alpha 1a blocker

d) Androgen receptor blocker

Correct Answer - A

Finasteride is a competitive inhibitor of the enzyme 5-alpha reductase which is responsible for the conversion of testosterone into a more active dihydrotestosterone responsible for the androgen action.

When used in benign prostatic hypertrophy, it reduces the prostate size and increased peak urinary flow rate.

It is also used in male pattern baldness and as a palliative treatment in prostatic carcinoma.

Ref: K D Tripathi Textbook of Pharmacology, 5th Edition, Page 272

282. Bleomycin toxicity affects which organ predominantly:
March 2011

a) Bone marrow

b) Lungs

c) Liver

d) RBC

Correct Answer - B

Ans. B: Lungs

Toxicity of Bleomycin is nausea, vomiting, dermatographia, scleroderma like changes in skin, pneumonitis and occasionally pulmonary fibrosis.

It is rarely a myelosuppressant

Bleomycin

- **It is a glycopeptide antibiotic produced by the bacterium *Streptomyces verticillus*.**
- **Bleomycin refers to a family of structurally related compounds.**
- **When used as an anticancer agent, the chemotherapeutic forms are primarily bleomycin A2 and B2.**
- **It works by causing breaks in DNA.**
- **The drug is used in the treatment of Hodgkin's lymphoma (as a component of the ABVD regimen), squamous cell carcinomas, and testicular cancer, as well as in the treatment of plantar warts and as a means of effecting**

pleurodesis

- **Bleomycin acts by induction of DNA strand breaks.**
- **DNA cleavage by bleomycin depends on oxygen and metal ions, at least in vitro.**
- **Therefore bleomycin is used in combination with doxorubicin in Hodgkins lymphoma, as they have additive and complementary effects on the DNA, since doxorubicin acts by intercalating between DNA strands, and also acts on topoisomerase II enzyme thus relaxing the topoisomerase complexes**
- **The most serious complication of bleomycin is pulmonary fibrosis and impaired lung function.**
- **It has been suggested that bleomycin induces sensitivity to oxygen toxicity**
- **Other side effects include fever, rash, dermatographism, hyperpigmentation, alopecia (hair loss) and Raynaud's phenomenon (discoloration of fingers and toes).**

283. Rituximab is antibody against?

a) CD20

b) VEGF

c) EGFR

d) IL-2

Correct Answer - A

CD20 REF: Goodman and Gillman 11th edition page 901

See APPENDIX-34 for "FDA APPROVED MONOCLONAL ANTIBODIES"

"Rituximab, sold under the trade names Rituxan and MabThera, is a chimeric monoclonal antibody against the protein CD20, which is primarily found on the surface of B cells. Rituximab is used in the treatment of many lymphomas, leukemias, transplant rejection and some autoimmune disorders"

**284. 5HT_{2A} antagonist drug
is ?**

a) Clozapine

b) Cisapride

c) Sumatriptan

d) Ketanserin

**Correct Answer - D
Ans. is 'd' i.e., Ketanserin**

285. Heparin is -

a) Polysaccharide

b) Lipoprotein

c) Monosaccharide

d) Polyenoic acid

Correct Answer - A

**Ans. is `a' i.e., Polysaccharide
o Heparin is mucopolysaccharide.**

**286. Drug of choice in drug induced
Parkinsonism is ?**

a) Levodopa

b) Carbidopa

c) Amantadine

d) Benzhexol

**Correct Answer - D
Ans. is 'd' i.e., Benzhexol**

287. A new born developed cleft lip and cleft palate and atrial septal defect. Which of the following drug is likely to be consumed by the mother so as to cause such type of congenital anomalies -

a) Digoxin

b) Methanol

c) ACE Inhibitors

d) Isotretinoin

Correct Answer - D

Ans. is 'd' i.e., Isotretinoin

Isotretinoin causes

o Craniofacial abnormality o CVS anomaly o CNS anomaly

Cleft, lip & palate

ASD

Neural tube defect

Microcephaly

Microcephaly

288. Use of Valproate during pregnancy may cause :

a) Neural tube defect

b) Hydantoin syndrome

c) Respiratory depression

d) Mental retardation

**Correct Answer - A
Neural tube defect**

289. Most common side effect of miltefosine is ?

a) Vomiting and diarrhea

b) Dermatitis

c) Hepatotoxicity

d) Nephrotoxicity

Correct Answer - A

Ans. is'a'i.e., Vomiting and diarrhea

Ref. Hanbon's Ch. 212

- **Miltefosine is an antileishmanial drug used orally for kala-azar.**
- **Vomiting and diarrhea are the most common adverse effect with miltefosine.**
- **Other common side effects are decreased appetite, dizziness, motion sickness, headache and weakness.**

290. Dextromethorphan should not be given with drug?

a) SSRIs

b) MAO inhibitors

c) Atropine

d) Paracetamol

Correct Answer - B

Ans. is 'b' i.e., MAO inhibitors

[RI Katzung L2nle p. 559, KDT #/e p. 213,215)

- **The antitussive dextromethorphan should also be avoided by patients taking one of the monoamine oxidase B inhibitors; indeed, it is wise to advise patients to avoid all over-the-counter cold preparations.**

291. Leucovorin is used for side effect reduction in which anticancer drug?

a) Methotrexate

b) 5-FU

c) Adriamycin

d) Cisplatin

Correct Answer - A

Ans. is 'a' i.e., Methotrexate

Ref: KDT 6n/e p. 387, 590, 591

- **Folinic acid (leucovorin) rescue**
- **Where it is desired to maximise the effect of methotrexate a potentially fatal dose is given and is followed 24 h later by a dose of folinic acid to terminate its action.**
- **High concentrations of methotrexate are obtained and bone marrow cells recover better than the tumor cells and some degree of useful selectivity is achieved.**

292. Which of the following drugs, is used for Smoking Cessation?

a) Naltrexone

b) Bupropion

c) Buprenorphine

d) Methadone

Correct Answer - B

Answer is B (Bupropion):

Bupropion (along with Varenicline and Nicotine replacement therapy) is a USFDA approved first line agent for pharmacotherapy in Smoking Cessation.

USFDA Approved Agents for Smoking Cessation

- ***Nicotine Replacement Therapy (Transdermal Patch, gum, lozenges, oral inhaler, nasal spray)***
- ***Bupropion (Atypical Antidepressant with dopaminergic and noradrenergic activity)***
- ***Varenicline (Selective partial agonist at the Alpha4-Beta2 Nicotinic A-Choline receptor that is believed to mediate nicotine dependence)***

Clonidine and Nortriptyline are two other medications that have efficacy but are NOT USFDA approved for this indication. These are classified as second line agents.

293. Intracellular receptors are used by ?

a) ACTH

b) TSH

c) Glucocorticoids

d) Insulin

Correct Answer - C

Ans. is 'c' i.e., Glucocorticoids

294. Which of the following is renin inhibitor ?

a) Losartan

b) Benazepril

c) Remikiren

d) Imidapril

Correct Answer - C
Ans. is 'c' i.e., Remikiren

295. Pigment gallstones usually not seen in:

a) Gilbert's syndrome

b) Alcoholic cirrhosis

c) Cystic fibrosis

d) Clofibrate therapy

Correct Answer - D

Clofibrate therapy: Increased biliary secretion of cholesterol, leads to cholesterol gallstones.

Pigment stones are more common in patients who have chronic hemolytic states), liver cirrhosis, Gilbert's syndrome, or cystic fibrosis.

Reference:

Harrisons Principles of Internal Medicine, 18th Edition, Page 2618

296. All are true about losartan, except ?

a) Angiotensin II antagonist

b) Causes hyperuricemia

c) Does not cause cough

d) Long acting metabolites

Correct Answer - B

Ans. is 'b' i.e., Causes hyperuricemia

Losartan is a mild uricosuric agent, Le causes hypouricemia

o Losartan is a *competitive antagonist* of angiotensin II (10000 times more *selective for AT1 than AT2*).

o In liver it gets converted to *long acting metabolite* (E 3174) which is *10-30 times more potent non competitive antagonist* of AT1

o Plasma t '1/2 of

i) Losartan ---> 2hr

ii) E3174 —> 6-9 hrs.

o It has several advantages over ACE inhibitors

It does not cause cough and angiodema

It does not cause dysguesia (altered taste sensation)

It does not cause first dose hypotension

AT-11 antagonists are more effective than ACE inhibitors in blocking the vasopressor action of angiotension-IL

Similarities with ACE inhibitor

3 Hyperkalemia and, hypotension

3 Teratogenic Contraindicated in pregnancy

Why do AT-II antagonists not cause cough and angiodema, while ACE inhibitors do ? Lets see

- **Bradykinin and substance P are substrate for ACE.**
- **ACE inhibitors increase level of these kinins by inhibiting ACE, which is responsible for cough and angiodema.**
- **AT-II antagonists do not inhibit ACE (they block AT-II receptors) --> No increase in the level of bradykinin and substance P —> No cough & angiodema.**

297. Beta blocker with membrane stabilizing property are all except ?

a) Acebutolol

b) Betaxolol

c) Carvedilol

d) Bevantolol

Correct Answer - D
Ans. is 'd' i.e., Bevantolol

298. Which of the following drug are used in β -blocker overdose?

a) Atropine

b) Acetylcholine

c) Glucagon

d) a and c

Correct Answer - D

Ans. is 'a' i.e., Atropine; 'c' i.e., Glucagon

β -blocker poisoning

o Overdose, including self poisoning, causes bradycardia, heart block, hypotension and low output heart failure that can proceed to cardiogenic shock.

o *Death is more likely with agents having membrane stabilizing action.*

o Severe bronchoconstriction may occur.

o Loss of consciousness may occur with lipid-soluble agents that penetrate the CNS.

Treatment of β -blocker poisoning.

o Atropine - is used to eliminate unopposed vagal activity that contribute to bradycardia.

o Glucagon and calcium - Are used for hypotension and symptomatic bradycardia.

o Isoprenaline can be used if there is no response. It has direct cardiac stimulant action via β_1 receptors.

o Other sympathomimetics may be used according to desired agonist actions β_1 , β_2 , a) required by the clinical

conditions, e.g. dobutamine, *dopamine*, *dopexamine*, *adrenaline*, *noradrenaline*.

o Amrinone can be used for inotropic effect.

o Salbutamol or *aminophylline* may be used to counteract bronchoconstriction.

**299. Drug of choice for managing
asthmatic patient with
hypertension:
*March 2009***

a) Timolol

b) Propranolol

c) Metoprolol

d) Amlodipine

Correct Answer - D

Ans. D: Amlodipine

The management of hypertension in a patient with asthma or chronic obstructive pulmonary disease (COPD) may be made difficult by the asthma-inducing effect of some antihypertensives. As an example, beta blockers should be used with great caution or not at all in patients with chronic asthma (including chronic obstructive pulmonary disease) or acute allergic or exercise-induced bronchospasm.

Calcium channel blockers are suitable as first line antihypertensive agent for:

- Asthma/ COPD patients.
- Recurrent stroke prevention
- Elderly with poor arterial wall compliance
- Isolated systolic hypertension
- Raynaud's/PVD patients
- Pregnant hypertensives

- **Diabetes**

300. Rationale of not using ACE inhibitor with spironolactone is?

a) Hyperkalemia

b) Hypokalemia

c) Increases cough

d) Hypomagnesimia

Correct Answer - A

Ans. is'a'i.e.,Hyperkalemia Katzung 1stle p. 5711

- **ACE inhibitor and diuretics**
- **ACE inhibitors cause hyperkalemia, therefore they can be combined with furosemide or thiazide diuretics which cause hypokalemia and nullify the hyperkalemic effect of ACE inhibitors.**
- **On the other hand potassium sparing diuretics (spironolactone, eplerenone, amiloride, triamterene) are contraindicated as they cause hyperkalemia and aggravate the hyperkalemia caused by ACE inhibitors.**

301. Mechanism of action of oral contraceptive pill can be all except ?

a) Hostile to sperm penetration

b) Anovulatory cycle

c) Failure of blastocyst implantation

d) Blockade of fimbrial ostia

Correct Answer - D

Ans. is 'd' i.e., Blockade of fimbrial ostia

Mechanism of action of OCPs

- 1. Inhibition of gonadotropin release from pituitary by reinforcement of normal feedback inhibition → No preovulatory LH surge → No ovulation
*This is the most important mechanism.***
- 1. Thickening of cervical mucus secretion (due to progesterone) → hostile to sperm penetration.**
- 2. Even if ovulation and fertilization occur, the blastocyte fails to implant because endometrium is either hyperproliferative or hypersecretory - not suitable for nidation → Important in case of postcoital pill.**
- 3. Uterine and tubal contractions may be modified to disfavour fertilization.**
- 4. Postcoital pills may dislodge a just implanted blastocyte or may interfere fertilization/implantation.**

302. Rosiglitazone mechanism of action is ?

a) Acts as PPAR gamma agonist

b) Inhibitor of alpha glucosidase

c) Acts as amylin analogue

d) Acts as dipeptidyl peptidase inhibitor

Correct Answer - A

Ans. is 'a' i.e., Acts as PPAR gamma agonist

Rosiglitazone

- **It is oral antidiabetic drug**
- **They are selective agonists for nuclear peroxisome proliferator activator receptor gamma (PPAR gamma) expressed in the fat and muscle cells.**
- **It enhances transcription of several insulin responsive genes.**
- **Reverse insulin resistance by enhancing GLUT 4 expression and translocation.**

303. Special feature of glargine insulin is ?

a) It produces a smooth peakless effect

b) It is not suitable for once daily administration

c) It remains soluble at pH 7

d) It can control meal time hyperglycemia

Correct Answer - A

Ans. is 'a' i.e., It produces a smooth peakless effect

Insulin Glargine

- It is long acting biosynthetic insulin.**
- It remains soluble at pH 4 of the formulation and precipitates at neutral pH on subcutaneous administration.**
- Onset of action is delayed.**
- It produces a smooth peakless effect.**
- It is suitable for once daily administration.**
- Low incidence of night time hypoglycemia.**
- It does not control meal time hyperglycemia.**

304. Pramlintide is ?

a) Synthetic amylin analogue

b) Inhibitor of DPP 4

c) GLP 1 analogue

d) PPAR gamma

Correct Answer - A

Ans. is 'a' i.e., Synthetic amylin analogue

NEWER ANTIDIABETIC DRUGS

Exenatide

- ***Exenatide is a synthetic glucagon-like peptide - 1 (GLP-1) analogue.***
- **GLP-1 is an important incretin that is released from gut in response to oral glucose.**
- **But GLP-1 can not be used clinically as it is degraded rapidly by enzyme *dipeptidyl peptidase* → (DPP-4).**
- **Exenatide is resistant to DPP-4.**
- **It acts similar to GLP-1 → Enhancement of postprandial insulin release, suppression of glucagon release and appetite as well as slowing of gastric emptying.**
- ***It is given by subcutaneous route & used in type 2 DM***
- ***Nausea is most important side effect.***

Sitagliptin

- **This is *orally active inhibitor of DPP-4.***
- **It prevents degradation of endogenous GLP-1 and other incretins, potentiating their action, resulting in limitation of postprandial hyperglycemia.**
- **It is used in *type 2 DM.***

- Other DPP-4 inhibitor is vildagliptin
- Pramlintide***
- This is a *synthetic amylin analogue* (Amylin is a polypeptide produced by pancreatic β -cells which reduces glucagon secretion from α -cells and delays gastric emptying).
 - Pramlintide attenuates postprandial hyperglycemia and exerts a centrally mediated anorectic action. It is given by subcutaneous route and is used in *both Type 1 and Type 2 DM*.
- Glucomannan***
- This is powdered extract from tuber of konjar.
 - It is promoted as a dietary adjunct for diabetes.
 - It swells in stomach by absorbing water and is claimed to reduce appetite, blood sugar, serum lipids and relieve constipation.
- Bromocriptine**
- Recently bromocriptine has been approved by FDA, as an adjunct to diet and exercise to improve glycemic control in type 2 DM. It has been found that dopamine alter insulin resistance by acting on hypothalamus and bromocriptine blocks D_2 receptors.

305. Diuretic causing impaired glucose tolerance is ?

a) Triamterene

b) Acetazolamide

c) Amiloride

d) Thiazide

Correct Answer - D

Ans. is'd'i.e., Thiazide

Ref KDT &/e p. 567; Katung If le p. 261

- **Diuretics causing hyperglycemia are loop diuretics (furosemide) and thiazide diuretics.**

306. Antiobesity drug withdrawn from Indian market due to cardiac side effects is ?

a) Orlistat

b) Sibutramine

c) Rimonabant

d) Clofibrate

Correct Answer - B

Ans. is 'b' i.e., Sibutramine

[Ref: Hanison 18h/e p. 634]

- **Sibutramine was the only available anorexiant approved by the FDA for long-term use until it was voluntarily withdrawn from the US market by the manufacturer in October 2010, due to an increased risk of nonfatal MI and nonfatal stroke among individuals with pre-existing cardiovascular disease.**

**307. Which of the following drug causes gynecomastia:
*September 2008, 2010***

a) Cimetidine

b) Ranitidine

c) Omeprazole

d) a and c both

Correct Answer - D

Ans.A, C: Cimetidine, Omeprazole

Many pharmacological agents have been linked to gynecomastia.

These drugs can be categorized by their mechanisms of action.

- **Drugs that act exactly like estrogens (e.g., diethylstilbestrol, birth control pills, digitalis, estrogen-containing cosmetics).**
- **Drugs that enhance endogenous estrogen formation (e.g., gonadotropins, progesterone, clomiphene).**
- **Drugs that inhibit testosterone synthesis and action (e.g., ketoconazole, metronidazole, and cimetidine (but not other H₂ blockers)).**
- **Lately, few reports of gynecomastia and erectile dysfunction, possibly due to reduced testosterone level, on prolonged use of omeprazole have appeared.**
- **Drugs that act by unknown mechanisms (e.g., isoniazid, methyldopa, captopril, tricyclic antidepressants, diazepam,**

marijuana, heroin).

Chronic alcohol abuse may result in hepatocellular destruction and scarring which may result in gynecomastia.

308. Alpha 1a adrenergic blocker giving symptomatic relief in BPH?

a) Tamsulosin

b) Prazosin

c) Oxazocin

d) Dolazoline

Correct Answer - A

Ans. is 'a' i.e., Tamsulosin

Tamsulosine is a uroselective blocker (α_{1A} blocker)

o It decreases the tone of smooth muscle in bladder trigone, sphincter and prostate → urine flow in patient with BHP is improved.

309. All of the following statements about Ranolazine are true, except;

a) Piperazine derived antianginal agent

b) May be used as first line agent in chronic angina

c) May improve glycemc control

d) Hypotension is an established adverse effect

Correct Answer - D

Ans. is 'd' i.e., Hypotension is an established adverse effect

- Ranolazine is an effective newer *anti-anginal drug* but unlike CCBs and beta-blockers it *does not significantly alter the heart rate or blood pressure.*
 - It is a *piperazine derivative.*
 - o Ranolazine appears to have other promising non-anginal effects, including *glycemc control*, improvement in endothelial function and decreases the incidence of atrial fibrillation and other arrhythmias.
 - o Ranolazine has been generally well tolerated in clinical trials *its most common adverse effects are nausea, constipation and dizziness.*
- About option b
- o Most of the text books have mentioned that ranolazine can be used as *add-on therapy in chronic stable angina.* o However, it has recently been approved as first line agent: "*Previously limited by its FDA indication to use in angina in combination with a calcium channel blocker, beta*

blocker or nitrate; ranolazine is now approved for use as a first line agent in chronic angina". .. The Heart. org.

310. Fibrinolytic that is antigenic?

a) Streptokinase

b) Urokinase

c) Alteplase

d) Tenecteplase

Correct Answer - A

Ans. is 'a' i.e., Streptokinase

[Ref: KDT &e p. 606]

- **Streptokinase is obtained from group 'c' beta-hemolytic streptococci. It activates both circulating and fibrin bound plasminogen.**
- **It is antigenic, can cause allergic reactions.**

311. Which of the following drugs can cause Torsades de pointes ?

a) Quinidine

b) Lignocaine

c) Esmolol

d) Flecainide

Correct Answer - A
Ans. is 'a' i.e., Quinidine

312. A patient taking ketoconazole and terfenadine both, is prone to -

- a) Cardiac arrhythmia
- b) Toxicity of ketoconazole
- c) Congestive cardiac failure
- d) All of the above

Correct Answer - A

Ans. is 'a' i.e., Cardiac arrhythmia

o Terfenadine causes blockade of delayed rectifier K⁺ channels in the heart at higher concentration and can cause *Torsades De Pointes (Polymorph ventricular tachcardia)* —> *Prolonged QT interval.*

Drugs inhibiting the metabolism of terfenadine by inhibiting CYP3A4 enzyme, can precipitate ventricular arrhythmia Erythromycin, clarithromycin, itraconazole, ketoconazole.

313. Cisapride was withdrawn from market due to ?

a) QT Prolongation

b) Increased PR interval

c) Teratogenicity

d) Myocardial damage

Correct Answer - A
Ans. is'a'i.e., QT prolongation

314. Antilipidemic drugs that prevent hypercholesterolemia by inhibiting absorption -

a) Ezetimibe

b) Orlistat

c) Cholestyramine

d) Statins

Correct Answer - A

Ans. is 'a' i.e., Ezetimibe

Ezetimibe inhibits the absorption of cholesterol by binding to transporter [NPC-1L1 (Niemann Pick C1, like) SRBI, 145 KDa] located in intestinal brush border.

Note:

Orlistat also reduces cholesterol absorption, but it is an anti-obesity drug (not an antilipidemic drug).

315. Which drug is specific MAO - B inhibitor?

a) Selegiline

b) Phenelzine

c) Tranylcypromine

d) Haloperidol

Correct Answer - A

Ans. is. a.i.e., Selegiline

[Ref: KDT #/e p. 440 & 5n/e p. 405; Katzung 71h/e p. 5151MAO inhibitors]

- **Nonselective = Tranylcypromine, phenelzine, isocarboxazid.**
- **Selective MAO-A = Moclobemide, clorgyline (used in depression).**
- **Selective MAO-B = Selegiline (used in parkinsonism).**

316. In comparison to digoxin, digitoxin has ?

a) Less plasma protein binding

b) More plasma half life

c) Less oral absorption

d) More daily elimination

Correct Answer - B

Ans. is. b'i.e., More plasma half life

[Ref: KDT & p. 497, 498; Katzung p. 219]

- **In comparison to digoxin,**
- **Digitoxin: More ; Oral absorption; plasma protein binding, onset & duration; plasma t_{1/2}, plasma concentration. Less: Daily elimination; daily maintenance dose.**

317. Mechanism of action of sodium nitroprusside in cyanide poisoning -

a) Produces methemoglobinemia

b) Increased blood flow to liver

c) Increased blood flow to heart

d) Increased blood flow to kidney

Correct Answer - A

Ans. is 'a' i.e., Produces methemoglobinemia

o Nitrates generate methaemoglobin which has high affinity for cyanide and forms cyanomethaemoglobin.

o Cyanomethaemoglobin may again dissociate to release cyanide, therefore, sodium thiosulfate is given to form sod.

318. Relcovaptan is ?

a) Angiotensin antagonist

b) Renin inhibitor

c) Vasopressin antagonist

d) ACE inhibitor

Correct Answer - C

Ans. is 'c' i.e., Vasopressin antagonist

[Ref: Katzung LLth/e p. 659]

- **Vasopressin receptor antagonists (Vaptans)**
- **At V1A receptor - Relcovaptan**
- **At V1B receptor - Nelivaptan**
- **At V2 receptor - Lixivaptan, sotavapton, tolvaptan, mozavaptan**
- **Non-selective - Conivapton**

319. Loading dose of diazepam for alcohol withdrawal?

a) 20-30 mg

b) 25-85 mg

c) 60-150 mg

d) 200-300 mg

Correct Answer - C

Ans. is 'c' i.e., 60-f 50 mg

[Ref: Evidence based medicine P. 1274]

- **The mean total dose of diazepam needed for loading 80-120 mg(4-5 doses over 8-10 hours).**
- **A dose below 180 mg sufficient in more than 90% of patients.**
- **If necessary, the sedative effect of diazepam can be boosted by giving 5 mg of haloperidol orally.**

320. Nonoxynol 9 ?

a) Is a chemical detergent

b) Is a barrier contraceptive

c) Can be used repeatedly in a day

d) Can be used to prevent STIs

Correct Answer - A

Ans. is'a'i.e., Is a chemical detergent

[Ref: [hnp://en.wikipedia.org/wiki/Nonoxynol-9](http://en.wikipedia.org/wiki/Nonoxynol-9)]

- **Nonoxynol - 9**
- **Chemical detergent that damages the sperm cell membranes, killing the cells.**
- **It is a safe, effective contraceptive option for women at low risk of HIV/ STIs**

321. One of the following is not true about nesiritide ?

a) It is a brain natriuretic peptide analogue

b) It is used in actually decompensated heart failure

c) It has significant oral absorption

d) It has a short half-life

Correct Answer - C

Ans. is 'c' i.e., It has significant oral absorption

o Nesiritide is a recombinant form of human BNP (Brain natriuretic peptide) that dilates the arterial and venous circulation in a balanced manner.

o It is only available for parenteral administration (oral bioavailability is poor)

o It has been approved for use in acute cardiac failure.

o Its $t^{1/2}$ is only 18 minutes.

322. Which of the following is an atypical antidepressant?

a) Citalopram

b) Sertaline

c) Venlafaxine

d) Reboxetin

Correct Answer - C

Ans. is 'c' i.e., Venlafaxine

Antidepressants

A. Typical

- **Tricyclic antidepressants**
 1. **NA + 5HT reuptake inhibitors :- Imipramine, Trimipramine, Amitriptyline, Clomipramine.**
 2. **Predominantly NA reuptake inhibitors :- Desipramine, Nortriptyline, Amoxapine, Reboxetine.**
 - **Selective serotonin reuptake inhibitors :- Fluoxetine, Paroxetine, Sertaline, Citalopram, Scitalopram.**
- B. Atypical :- Trazodone, Mianserine, Mitrazapine, Venlafaxin, Duloxetine, Tianeptine, Amineptine, Bupropion.**
- c. MAO inhibitors :- Tranylcypamine, Meclobemide, Clorgyline.**

323. Mechanism of action of Montelukast is:

a) Inhibition of leukotriene production

b) Inhibits alpha receptors

c) Beta receptor agonist

d) Phosphodiesterase inhibition

**Correct Answer - A
Inhibition of leukotriene production**

324. Shortest half life is of ?

a) Metacholine

b) Acetyl choline

c) Carbachol

d) Bethanechol

Correct Answer - B

Ans. is 'b' i.e., Acetylcholine

[Ref. Katzung 11th ed p. 130]

- **Acetylcholine is very rapidly hydrolyzed; large amounts must be infused intravenously to achieve concentrations sufficient to produce detectable effects.**
- **Methacholine is more resistant to hydrolysis, and the carbamic acid esters carbachol and bethanechol are still more resistant to hydrolysis by cholinesterase and have correspondingly longer duration of action.**

325. Lithium directly affects which ion ?

a) Sodium

b) Potassium

c) Magnesium

d) Calcium

Correct Answer - A

Ans. is 'a' i.e., Sodium

- **Diuretics (particularly thiazides) decrease the renal excretion of lithium and thus may result in toxicity. This is due to increased reabsorption of Na⁺ and lithium ions (as a compensatory response to excessive loss of Na⁺).**

Interactions of lithium

- 1. Diuretics (thiazide, furosemide) by causing Na⁺ loss promote proximal tubular reabsorption of Na⁺ as well as Li → Plasma level of lithium rises.**
- 2. Tetracyclines, NSAIDs and ACE inhibitors cause lithium retention.**
- 3. Lithium tends to enhance insulin/sulphonylurea induced hypoglycemia (lithium has insulin like action on glucose metabolism).**
- 4. Lithium inhibits the action of ADH on distal tubules causes nephrogenic DI.**
- 5. Lithium reduce thyroxine synthesis by interfering iodination of tyrosine.**

326. Receptor responsible for malignant hyperthermia is?

a) Nicotinic receptor

b) Ryanodine receptor

c) Muscarinic receptor

d) None

Correct Answer - B

Ryanodine receptor

REF: Morgan 3rde p. 869

This condition is known by a number of names, including malignant hyperthermia (MH), malignant hyperthermia syndrome (MHS), and malignant hyperpyrexia.

Signs and symptoms:

The typical symptoms of malignant hyperthermia are due to a hypercatabolic state, which presents as a very high temperature, an increased heart rate and breathing rate, increased carbon dioxide production, increased oxygen consumption, acidosis, rigid muscles, and rhabdomyolysis.

The symptoms usually develop within one hour after exposure to trigger substances, but may even occur several

hours later in rare instances.

Causes:

Volatile anesthetic gases halothane, sevoflurane, desflurane

Local anesthetics mepivacaine	lidocaine, bupivacaine,
Depolarizing muscle relaxants	succinylcholine
Other ketamine, barbiturates, nitrous oxide, propofol, etomidate, benzodiazepines	Opiates (morphine, fentanyl),

Genetics:

Malignant hyperthermia's inheritance is autosomal dominant. The defect is typically located on the long arm of the nineteenth chromosome (19q13.1) involving the ryanodine receptor.

327. PGE2 cervical gel for cervical ripening maximum dose in 24 hrs is ?

a) 2 mg

b) 1 mg

c) 1-5 mg

d) 4 mg

Correct Answer - C

Ans. is 'c' i.e., 1.5 mg

[Ref: www.drugs.com]

- **PGE2 (dinoprost) is used for cervical ripening.**
- **Cervical gel 0.5 mg is used, which may be repeated 6 hours later, if necessary.**
- **Maximum dose which can be given in 24 hours is 1.5 mg.**

328. True statement about phase 2 clinical trials is ?

a) Large number of healthy volunteers are studied

b) Used to determine maximum tolerated dose

c) Used to determine efficacy

d) Used to determine toxicity

Correct Answer - C

Ans. is 'c' i.e., Used to determine efficacy

o Phase 2 trial is done to determine efficacy and safety. It involves small number of patients.

329. Side effect of nasal decongestants is ?

a) Anosmia

b) Dryness of nasal mucosa

c) Decreased vision

d) Hyperosmia

Correct Answer - A

Ans. is'a'i.e., Anosmia

[Ref: clinically oriented pharmacology Dr.I. G. Buch p. 87]

- **Nasal decongestants**
- **Nasal Decongestants: Ephedrine, Pseudoephedrine, Phenylpropanolamine, Phenylephrine, Xylometazoline, Oxymetazoline, Naphazoline.**
- **Adverse drug reactions include local irritation, tolerance, after congestion, damage to mucosal cilia, atrophic rhinitis, anosmia.**

**330. Tokyo Convention Act of 1975
pertains to?**

a) MTP

b) Clinical trial on humans

c) Women rights

d) Offences committed on board aircraft

Correct Answer - D

**Ans. is 'd' i.e., Offences committed on board aircraft
Tokyo Convention Act 1975**

**Conventions on offences and certain acts committed while
on board aircraft are carried out in India under the Tokyo
Convention Act, 1975.**

331. Poroscopy in a forensic lab involves which of the following?

a) Counting the whorls in the fingerprints

b) Counting pores of sweat glands

c) Counting pores of sebaceous glands

d) Counting number of papillary ridges

Correct Answer - B

Poroscopy is the term applied to a specialized study of pore structure found on papillary ridges of skin as a means of identification.

It comes under level 3 detail of identification and hence is more reliable and accurate.

It is a further study of fingerprints described by Locard.

There are plenty of micropores in between the papillary ridges of the skin, which are openings of sweat glands.

Ref: Textbook of Forensic Medicine and Toxicology by Nagesh Kumar Rao,
Page 100

**332. Undertaker's fracture is seen at the level of cervical vertebra:
*NEET 15***

a) C1-C2

b) C3-C4

c) C5-C6

d) C6-C7

Correct Answer - D

Ans. C6-C7

It is caused due to the head falling backwards forcibly after death, which tears open one of the intervertebral discs, usually around C6 and C7.

. Due to the prolapse of the cervical intervertebral disc, there is increased tendency of subluxation of the lower cervical spine.

333. In case of Hanging, postmortem examination shows tear in carotid artery. This is called?

a) Battle sign

b) Amussat's sign

c) Nutcracker sign

d) Ring sign

Correct Answer - B

Ans. is 'b' i.e., Amussat's Sign

- **Amussat's sign refers to tear in intima of carotid artery.**
- **It is seen in cases of hanging.**

334. Penal code for death sentence is ?

a) 300

b) 302

c) 304

d) 306

Correct Answer - A

Ans. is 'a' i.e., 300 [Ref Parikh 6th le p. 3.68]

335. Pregnant lady's hanging is postponed by high court , it comes under which CrPC?

a) 416

b) 417

c) 300

d) 312

Correct Answer - A

Ans. is 'a' i.e., 416 [Ref S.K. Singhal ele p. 331]

- **Section 416 CrPC : Postponement of capital sentence on pregnant woman or its commutation of imprisonment for life can be done by the high court.**

336.

Section defining the rape ?

a) 304 B IPC

b) 302 IPC

c) 375 IPC

d) 376 IPC

Correct Answer - C

Ans. is 'c' i.e., 375 IPC

Rape

- **According to Section 375 IPC, a man is said to commit rape, if he has sexual intercourse with a women :?**
 1. **Against her will**
 2. **Without her consent**
 3. **With her consent if she is**
 - **Less than 16 years of age.**
 - **With his own wife less than 15 years of age.**
 - **Intoxicated or has unsound mind so that she is unable to understand the consequences.**
 - **Consent is obtained by unlawful means, i.e. fears of death or hurt to herself or to some one whom she is interested.**
 - **Impersonation , i.e. when the man knows he is not her husband and her consent is given because she believes that he is another man to whom she is lawfully married.**

337. IPC code related to infanticide ?

a) 302

b) 312

c) 317

d) 318

Correct Answer - A

Ans. is 'a' i.e.,302

[Ref SK Single L'Ve p. 268]

- **Infanticide refers to killing a child after delivery, to till 1 year after birth.**
- **Infanticide in India is considered equivalent to murder and is tried under section 302 IPC. Law considers every child as born dead and therefore in a case of infanticide, it has to be proved that the child was born alive and was then killed.**

338.

Mr. X fired his gun at Mr. V who moved and escaped with the bullet only grazing his thigh. There was only a little bleeding without any significant injury. Mr. X is liable for arrest under which section of Indian Penal Code:

a) 302

b) 304

c) 324

d) 326

Correct Answer - C

Ans: C. 324

- (Ref Reddy 34/e p275, 33/e p292)
- Usage of dangerous weapon for hurting - Under section 324 of IPC.

Section Deals with

302 IPC	Punishment for murder°
304A IPC	Causing death by negligence, punishment up to 2 years (medical negligence)
304B IPC	Dowry death°, punishment 7 years to life imprisonment
324 IPC	Voluntarily causing hurt by dangerous weapons or means
326 IPC	Voluntarily causing grievous hurt by dangerous

32b
1PC

weapons or means

**339. Cutis anserine seen
in:**

a) Drowning

b) Throatling

c) Strangulation

d) Garroting

**Correct Answer - A
A i.e. Drowning**

340. Following is not a sexual perversion ?

a) Sadism

b) Masochism

c) Undinism

d) Bestiality

Correct Answer - D
Ans. is d i.e., Bestiality

341. Following are the early causes of death in criminal abortion except?

a) Hemorrhage

b) Vagal inhibition

c) Fat embolism

d) Septicemia

Correct Answer - D

Ans. is 'd' i.e., Septicemia

Death in criminal abortion

Early Causes

Hemorrhage

shock

vagal inhibition

Fat embolism

Air embolism

Cervix and vagina

Perforation of uterus

Delayed causes

General peritonitis

Pelvic tetanus

Pyemia

Septicemia

Secondary
hemorrhage

Late causes

Hepatitis

Meningitis

Pneumonitis

Endocarditis

Pulmonary
embolism

Systemic poisoning

342. Temporary cavity is seen in gun shot injury with ?

a) High velocity

b) Low velocity

c) High weight bullet

d) Low weight bullet

Correct Answer - A

Ans. is 'a' i.e., High velocity [Ref Gautam Biswas 2ndle p. 189]

- **Size and configuration of temporary cavity is affected by :-**
 - 1. Kinetic energy of bullet → Velocity plays the major role in determining kinetic energy.**
 - 2. Type of tissue along the tract (elastic vs non-elastic).**

343. Six penny bruise is seen in ?

a) Manual strangulation

b) Hanging

c) Pedestrian injury

d) Head injury

Correct Answer - A

Ans. is 'a' i.e., Manual strangulation [Ref Rajesh Bardale 2011 p. 178]

Six penny bruise

- **These are discoid shaped bruises of about 1 cm in diameter resulted from fingertip pressure usually seen in neck region because of manual strangulation. These are called six penny bruise because of resemblance with six penny.**

344. Under the 'NDPS Act' following drugs are included, *except*:
NIMHANS 08

a) Opium/heroin

b) Hashish

c) Amphetamine

d) Alcohol

Correct Answer - D
Ans. Alcohol

345. Site of knot in classical hanging is ?

a) Nape of neck

b) Right side of neck

c) Left side of neck

d) Below the chin

Correct Answer - A

Ans. is 'a' i.e., Nape of neck [Ref Parikh 6th/e p. 3.41-3.46]

- **Typical hanging :** The ligature runs from the midline *above the thyroid cartilage*, symmetrically upward on both side of neck to the occipital region, the point of suspension (knot of ligature) being on occiput (at nape of neck).
- **Atypical hanging :** Any variation from typical knot site (i.e. other than occiput/nape of neck) is called atypical hanging. Most common site of knot is near one side of *mastoid process or angle of mandible*.

346. During autopsy of suspected anaesthetic poisoning, lung excised from hilum is to be preserved in ?

a) PVC container

b) Metal container

c) Nylon bag

d) Poly ethylene bag

Correct Answer - B

Ans. is 'b' i.e., Metal container [Ref Gautam Biswas 2nd/e p. 298]

- **In normal toxicological examination one lung is preserved in sealed nylon bag. In case of inhaled anesthetic, intact lung with bronchi ligated should be kept in gas sealed *metal/ non plastic containers* of appropriate size to avoid empty space and are sealed and refrigerated/ frozen. Alveolar should be collected with needle and syringe by puncturing the lung under water before the chest is opened.**

347. White vitrol is ?

a) Magnesium hydroxide

b) Magnesium chloride

c) Zinc sulfate

d) Zinc chloride

Correct Answer - C

Ans. is 'c' i.e., Zinc sulfate [Ref Krishna Vij 5th Ve p. 566]

- **Zinc sulfate Irritant → White vitriol (Astringent)**
- **Zinc chloride Corrosive → Butter of zinc (Astringent)**
- **Zinc phosphide Rodenticide → Rat poison**

348. All are tests for detecting carbon monoxide in blood except?

a) Kastle mayer test

b) Tannic acid test

c) Spectrophotometry

d) Hoppe-seyler's test

Correct Answer - A

Ans. is 'a' i.e., Kastle mayer test

- **Spectroscopic examination, Hoppe - Seyler's test (10% NaOH), kunkel's (tannic acid) test and adding water (15 ml) in 2 drops of blood can detect CO.**

349. Magnan's symptom is ?

a) Auditory hallucination

b) Visual hallucination

c) Tactile hallucination

d) Olfactory hallucination

Correct Answer - C

Ans. is 'c' i.e., Tactile hallucination [Ref Parikh 6th/e p. 10.55]

- **Magnan's symptoms is tactile hallucination (formication) i.e. feeling of bugs crawling under the skin seen with cocaine poisoning.**

350. Wrong about dhatura seeds is ?

a) Kidney shaped

b) Odourless

c) Yellow brown

d) Convex smooth surface

Correct Answer - D

Ans. is 'd' i.e., Convex smooth surface [Ref Pilley 4th/e p. 207; Gautam Biswas 2nd /e p. 496]

Features of Dhatura sees are :-

- 1. Large & thick**
- 2. Odourless**
- 3. Kidney - shaped**
- 4. Laterally compressed and double edged at convex border (not smooth)**
- 5. Yellowish brown**
- 6. Bitter**

351. Ophitoxaemia refers to poisoning due to ?

a) Scorpion bite

b) Snake bite

c) Bee sting

d) Dog bite

Correct Answer - B

Ans. is 'b' i.e., Snake bite [Ref Ramesh Gupta Zoology book]

- **Ophitoxemia is poisoning by snake venom.**

352. Garlic odor around the nostrils and mouth is indicative of poisoning with:
AP 07

a) Cyanide

b) Organophosphorus

c) Carbolic acid

d) Aluminum phosphide

Correct Answer - D
Ans. Aluminum phosphide

353. Mee's line on nail is diagnostic of ?

a) Lead poisoning

b) Arsenic poisoning

c) White phosphorus poisoning

d) Mercury poisoning

Correct Answer - B

Ans. is 'b' i.e., Arsenic poisoning

Chronic arsenic poisoning

- **First stage of gastrointestinal & nutritional disturbance:**
 1. **Gradual emaciation is earliest sign**
 2. **Anorexia, nausea, vomiting, diarrhoea & abdominal cramps**
- **Second catarrhal stage**
 1. **Features of common cold, bronchial catarrhal, coughing & hoarseness**
- **Third stage of skin rash**
 1. **Skin irritation, vesicular eruption resembling nettle rash**
 2. **Patchy brown raindrop type pigmentation**
 3. **Hyperkeratosis of palms & soles**
 4. **Falling of hair & brittleness of nail**
 5. **White transverse band or Mee's line on nail**
- **Fourth stage of nervous disturbance**
 1. **Sensory motor neuropathy causing tingling, numbness & paresis**
 2. **Encephalopathy**
- **Bone marrow suppression, anemia, weight loss, hepatomegaly, cirrhosis, nephritis, thrombocytopenia,**

leukemia, skin, lung, liver, bladder & kidney cancer and exfoliative dermatitis & diabetes.

354. Mee's line on nail is diagnostic of ?

a) Lead poisoning

b) Arsenic poisoning

c) White phosphorus poisoning

d) Mercury poisoning

Correct Answer - B

Ans. is 'b' i.e., Arsenic poisoning [Ref Reddy 30th le p. 492]

- **Mees line on nails is seen in Arsenic poisoning.**

355. Blue line on gums are seen in which poisoning ?

a) Arsenic

b) Copper

c) Lead and Mercury

d) B , C and D

Correct Answer - D

Ans. is `b, c & d' i.e., Copper, Lead & Mercury [Ref Parikh 6th/e p. 9.17-9.20, Reddy 30th/e p. 497-498]

Blue-line on gums is seen in :-

- **Lead poisoning (Burtonion line)**
- **Mercury poisoning**
- **Copper poisoning**
- **Silver poisoning**
- **Bismoth poisoning**
- **Iron poisoning**

I think, there should be 'all except' in the question. Answer will be Arsenic in that case.

356. MHC class III genes encode -

a) Complement component C3

b) Tumor necrosis factor

c) Interleukin 2

d) Beta 2 microglobulin

Correct Answer - B

Ans. is 'b' i.e., Tumor necrosis factor

Class III (MHC-III)

It encodes for *complement components C2 & C4, properdin factor B, Heat shock protein and Tumor necrosis factor- α and 13 (TNF- α and (3). MHC-III is involved in susceptibility to autoimmune diseases like SLE*

357. Classic complement is activated by:

a) IgG

b) IgA

c) IgM

d) both A and C

Correct Answer - D

Ans. (a) and (c) IgG and IgM **Ref Harrison 17/c, p 2036; Ananthanarayan 9/e, p 97**

- **Classic complement pathway is not activated by IgG4 subtype.**
- **Alternate complement pathway is activated by IgA, IgD, IgG4.**

358. Which compliment binds with Fc portion of IgM in Classic pathway ?

a) C1

b) C2

c) C3

d) C4

Correct Answer - A

Ans. is 'a' i.e., C1 [Ref Jawetz 24th/e Chapter 8]

- **C1q portion of C1 binds to the Fc portion of IgM (C_H2 region) and IgG (C_H4 region).**

359. Which of the following complement components attaches to the crystallizable fragment of immunoglobulin M ?

a) C5b

b) C5a

c) C1qrs

d) C4b2a

Correct Answer - C

Ans. is 'c' i.e., C1qrs [Ref Jawetz 24th/e Chapter 8]

- Only IgM and IgG activate or fix complement via the classic pathway. Of the IgGs, only IgG subclasses 1, 2 and 3 fix complement; IgG4 does not.
- C1, which is bound to a site in the Fc region, is composed of three proteins: C1q, C1r and C1s. C1q is an aggregate of polypeptides that bind to the Fc portion of IgG and IgM.
- The antibody-antigen immune complex bound to C1 activates C1s, which cleaves C4 and C2 to form C4b2b. The latter is an active C3 convertase, which cleaves C3 molecules into two fragments: C3a and C3b.

360. Immunoglobulin responsible for anamnestic response is -

a) IgA

b) IgG

c) IgM

d) IgE

Correct Answer - B

Ans. is 'b' i.e., IgG [Ref Essential immunology p. 126]

- **Antibody response to antigenic stimulus are?**
- **Primary response :** It is the response to first exposure to antigen and is mainly mediated by IgM.
- **Secondary response (anamnestic response) :** It is due to subsequent exposure to antigen and is mediated mainly by IgG.

361. Heavy chain of IgA is ?

a) Gamma

b) Mu

c) Delta

d) Alpha

Correct Answer - D

Ans. is 'd' i.e., Alpha [Ref Ananthanarayan 8th/e p. 96]

Ig G γ (gamma)

Ig A α (alpha)

IgM μ (mu)

Ig D δ (delta)

Ig E ε (epsilon)

362. Action of Papain on an IgG molecule produces?

a) 2 Fc fragments & 1 Fab fragment

b) 1 Fc fragment & 2 Fab fragments

c) 2 Fc fragments & 2 Fab fragments

d) 1 Fc fragment & 1 Fab fragment

Correct Answer - B

1 Fc fragment & 2 Fab fragments REF: Jawetz, Melnick, & Adelberg's Medical Microbiology, 24TH edition Chapter 44
If an antibody molecule is treated with a proteolytic enzyme (eg, Papain), peptide bonds in the hinge region are broken. This breakage produces two identical Fab fragments, which carry the antigen-binding sites, and one Fc fragment, which is involved in placental transfer, complement fixation, attachment for various cells, and other biologic activities.

363. SCID which is true -

a) Adenosine deaminase deficiency

b) Decreased circulating lymphocytes

c) NADPH oxidase deficiency

d) CI esterase deficiency

Correct Answer - A

Ans. is 'a' i.e., Adenosine deaminase deficiency

364. Feces are not routinely inoculated in ?

a) Chocolate broth

b) Selenite F broth

c) Mc Conkeys agar

d) Blood agar

Correct Answer - A

Ans. is 'a' i.e., Chocolate broth [Ref Essentials microbiology p. 393]

Inoculate media for routine stool culture are :?

- Blood agar
 - MacConkey agar
 - Hektoen enteric HE (agar)
 - Selective media for campylobactor : Campy BAP, skirrow
 - Selenite F broth or GN Broth
 - Xylose-lysine deoxycholate agar (XLD agar)
- For specific situations, selective media are used :-**
- Vibrio : TCBS agar or Alkaline peptone broth.
 - Yersinia : Cefsulodin-Irgasan-Novobiosin (CIN) agar or Phosphate Buffered Saline (PBS) broth.
 - E.coli 0157: H7 : Sarbitol-MacConkey agar.

365. Most of the Bacteriophage capsid exhibits which symmetry?

a) Helical

b) Icosahedral

c) Spherical

d) Filamentous

Correct Answer - B

Ans. is 'b' i.e., Icosahedral [Ref Essentials of Microbiology p. 638]

There are three basic structural forms of a phage :-

- 1. Icosahedral head with a tail**
- 2. Icosahedral head without a tail**
- 3. Filamentous form**
 - Icosahedral head with a tail is the most common**

366. Which Viral Infection associated with Exacerbation of Asthma in COPD Patients ?

a) Adenovirus + Rhino Virus

b) Rhinovirus + Corona Virus

c) RSV + Coronavirus

d) Rhinovirus + RSV + Influenza

Correct Answer - D

Ans. is 'd' i.e., Rhinovirus + RSV + Influenza [Ref Harrison 18thVe chapter 260]

- **Viruses associated with exacerbation of COPD :**
Rhinovirus, Coronavirus, RSV, influenza virus.
- **Bacteria associated with exacerbation of COPD :**
Pneumococcus, H influenzae, M catarrhalis, Mycoplasma pneumoniae, Chlamydia pneumoniae.

367 ▪ Systemic Inflammatory Response Syndrome (SIRS) includes all of the following, EXCEPT:

a) Leucocytosis

b) Hyperthermia

c) Hypothermia

d) Thrombocytopenia

Correct Answer - D

Fever or hypothermia, leukocytosis or leukopenia, tachypnea (>20/minute), and tachycardia (>90/min) are the cardinal signs of systemic inflammatory response syndrome (SIRS).

Ref: Harrison's Internal Medicine, 18th Edition, Chapter 271; Clinical Review of Surgery - ABSITE Preparation, 2nd Edition, Pages 286-7

368. HPV is associated with ?

a) Carcinoma lung

b) Carcinoma brain

c) Carcinoma kidney

d) Carcinoma head neck

Correct Answer - D

Ans. is 'd' i.e., Carcinoma head neck [Ref Essentials microbiology p. 424]

Cancers associated with HPV are :?

Cervical carcinoma

Anal carcinoma

Vulvar carcinoma

Penile carcinoma

Vaginal carcinoma

Oropharyngeal carcinoma (soft palate, base of tongue, tonsils).

369. Variola virus is ?

a) Orthopox

b) Parapox

c) Copripox

d) Suipox

Correct Answer - A

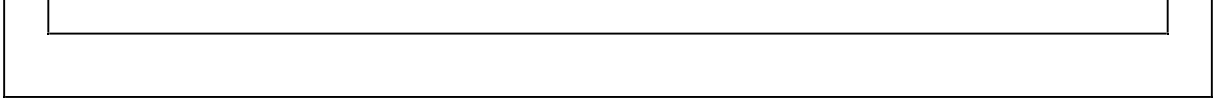
Ans. is 'a' i.e., Orthopox [Ref Ananthanarayan S^tYe p. 461]

Poxviridae has been classified into two subfamilies -

- **Chordopoxvirinae : Poxviruses of vertebrates.**
- **Entomopoxvirinae : Poxviruses of insects which do not infect vertebrates.**

Chordopoxvirinae are classified into six genera or subgroups -

- **Orthopoxvirus : These are mammalian poxviruses that tend to cause generalized infection with rash. Exmples are variola (smallpox virus), vaccinia, cowpox, monnkeypox, rabbitpox, buffalopox, camelpox, mousepox.**
- **Parapoxvirus : Viruses of ungulates that may occasionally infact human, eg. Orf (contagious pustular dermatitis) and paravaccinia (milker's node, bovine pupular stomatitis).**
- **Copripoxvirus : Viruses of goat and sheeps, eg. sheep-pox, goatpox, lumpy skin disease.**
- **Leporipox virus : Viruses of of leporids (rabbits, hares, squirrels), e.g. myxoma and fibromas.**
- **Avipoxvirus : Virus of birds, eg. fowlpox, turkeypox, pigeonpox, canarypox.**
- **Suipoxvirus : Virus of swine, eg. swinepox.**



370. Speed of rabies virus in axon is?

a) 1 mm per hour

b) 3 mm per hour

c) 5 mm per hour

d) 7 mm per hour

Correct Answer - B
Ans. is 'b' i.e., 3 mm per hour

371. Which antigen of rabies virus stimulates antibody production ?

a) Lipoprotein

b) Glycoprotein

c) Phosphoprotein

d) Intranuclear protein

Correct Answer - B

Ans. is 'B' i.e., Glycoprotein

There are following antigenic structures in rabies virus :?

1) Glycoprotein G (on surface spikes)

- It is important in virulence, pathogenesis and immunity.
- It is *serotype specific*.
- It induces protective antibodies(D^{''''}), mediates binding of virus to Ach receptors and stimulates cytotoxic T-cells.

2) Nucleocapsid protein

- It is group specific and antibodies against it are not protective.

3) Other antigens

- These are two membrane proteins, glycolipid, and RNA dependent RNA polymerase.

372. Super carrier of HBV shows following serum markers ?

a) HBsAg

b) HbsAg + HBV DNA

c) HbsAg + HBeAg + HBV DNA

d) Anti-HBsAg + HBV DNA

Correct Answer - C

Ans. is 'c' i.e., HbsAg + HBeAg + HBV DNA

- **In HBV infection, there are two types of carriers :**
Super Carriers
- **High titre of HBs Ag, HBe Ag, DNA polymerase and HBV in the circulation**
- **Highly infective**
Simple carriers
- **Low titre of HBsAg with negative HBe Ag, DNA polymerase and HBV**
- **Have low infectivity**

373. Hepatitis A virus is:

a) Flavivirus

b) Calcivirus

c) Enterovirus

d) Defective virus

Correct Answer - C

Ans. c. Enterovirus

1)

Hepatitis

A

2)

Hepatitis

B Enterovirus (Picornavirus), non- enveloped RNA

3) virus Hepadana virus, DNA virus

Hepatitis Flavivirus, enveloped RNA virus

C Defective RNA virus resembling viroids

4) Calcivirus, non-enveloped RNA virus

Hepatitis

D

5)

Hepatitis

E

374. Avian flu is ?

a) Type A

b) Type B

c) Type C

d) Type D

Correct Answer - A

Ans. is 'a' i.e., Type A [Ref Harrison 18th/e p. 1494]

- **Avian flu (avian influenza) is caused by Type A influenza virus with various HN strains.**

375. Red pigment producing bacteria is ?

a) E coli

b) Bordetella parapertussis

c) Pseudomonas aeruginosa

d) Serratia marcesans

Correct Answer - C:D

Ans. is 'd > c' i.e., Serratia marcesans > Pseudomonas aeruginosa [Ref: Read below]

- **Serrati marcescens produces red-colored pigment prodigiosin.**
- **Pseudomonas mainly produces blue-green Colored pyocyanin. But it can also produce pyoverdin (greenish-yellow), pyorubin (red) and pyomelanin (black).**

376. ASO titre is useful in diagnosis of ?

a) *S. bovis*

b) *S. pyogenes*

c) *S. agalactiae*

d) *S. pneumonia*

Correct Answer - B

Ans. is 'b' i.e., *S. pyogenes* [Ref Pediatric cardiology for practitioners 2nd ed p. 251]

- **Positive throat cultures or rapid streptococcal antigen tests for group A streptococci are less reliable for antecedent infection capable of producing rheumatic fever because they do not distinguish between recent infection and chronic pharyngeal carriage (as many people are carrier of this bacteria).**
- **Antibody tests are the most reliable laboratory evidence of antecedent streptococcal infection capable of producing acute rheumatic fever. The onset of clinical manifestations of acute rheumatic fever coincides with the peak of the streptococcal antibody response.**
- **The antibodies used commonly for serological tests are antistreptolysin O (ASO), antideoxyribonuclease (Anti-DNAse) and antihyaluronidase.**

377. Streptococcus is called as flesh eating bacteria due to its?

a) Streptolysin A

b) Streptolysin 0

c) Pyrogenic exotoxin

d) Hyaluronidase

Correct Answer - C

Ans. is 'c' i.e., Pyrogenic exotoxin [Ref Ananthanarayan 8th/e p. 209]

- **Streptococcal necrotising fasciitis is caused by streptococcus pyogenes M types 1 and 3 strains forming pyrogenic exotoxin A.**
- **These strains have earned notoriety under the name "Flesh eating bacteria" and cause extensive necrosis of subcutaneous and muscular tissue and adjacent fascia which may be associated with severe systemic illness.**

378. Streptococcus toxin which is responsible for connective tissue breakdown ?

a) Hyaluronidase

b) Streptolysin O

c) Streptolysin S

d) Streptococcus pyogenic exotoxin

Correct Answer - A

Ans. is 'a' i.e., Hyaluronidase [Ref Jawetz 24th/e chapter 15]

- **Hyaluronidase splits hyaluronic acid, an important component of the ground substance of connective tissue. Thus, hyaluronidase aids in spreading infecting microorganisms (spreading factor).**
- **Hyaluronidases are antigenic and specific for each bacterial or tissue source. Following infection with hyaluronidase-producing organisms, specific antibodies are found in the serum.**

379. A 4 yr old partially immunized boy came to OPD with history of bouts of coughing. On staining the sputum sample an organism with bipolar staining was seen. Which among the following organism it would be ?

a) *Y. Pestis*

b) *B. pertussis*

c) *S. Agalactae*

d) *K. Pneumoniae*

Correct Answer - B

Ans. is 'b' i.e., *B. pertussis* [Ref Jawetz Microbiology 24th/e chapter 19]

- **Bouts of Coughing and bipolar staining suggest the diagnosis of whooping cough (*pertussis*).**

380. Diphtheria toxin resembles toxin of ?

a) Birds

b) Spider

c) Snake

d) Scorpion

Correct Answer - C

Ans. is 'c' i.e., Snake [Ref Jawetz Microbiology 24th/e chapter 13]

- **Nerve damage caused by diphtheria toxin resembles to action of neurotoxic snakes (Cobra).**

381. Staphylococcus is localized in ?

a) SSSS

b) TSS

c) Food poisoning

d) Carbuncle

Correct Answer - D

Ans. is 'd' i.e., Carbuncle [Ref Harrison'sle/e chapter 135]

- Carbuncle is a localized infection of Staphylococcus.
- SSSS (Staphylococcal Scalded Skin Syndrome), food poisoning and TSS are toxin mediated

382. Staphalococcus Oxacillin resistance is best detected by?

a) Cefotixin MIC

b) Cefotixin disc diffusion

c) Oxacillin disc diffusion

d) Oxacillin agar

Correct Answer - B

Ans. is 'b' i.e., Cefotixin disc diffusion

- **Oxacillin (also methicillin) resistance is detected by finding the presence of mec A gene.**
- **"Cefoxitin disc diffusion has been reported to more accurately predict mec A gene presence than oxacillin disc diffusion."**
- **The use of cefoxitin MIC test has not been recommended by the CLSI-AST (Clinical and Laboratory Standards Institute), but its presence is equivalent to cefoxitin disc diffusion.**

383. Surrogate marker for MRSA detection is ?

a) Cefotaxime

b) Ceftazadime

c) Cephloridine

d) Cefoxitin

Correct Answer - D

Ans. is 'd' i.e., Cefoxitin

- **Testing with cefoxitin as a surrogate marker for the detection of methicillin resistance was very accurate with both disc both disc diffusion and agar dilution methods.**
- **Such testing clearly distinguished methicillin-resistant strains of S.aureus from methicillin-susceptible strains.**

384.

Protein A of staph aureus is part of bacterial ?

a) Genome

b) Cell wall

c) Limiting membrane

d) Plasmid

Correct Answer - B

Ans. is 'b' i.e., Cell wall [Ref Jawetz Microbiology 24th/e chapter 20]

- **Protein A is a cell wall component of many S aureus strains that binds to the Fc portion of IgG molecules except IgG3.**
- **The Fab portion of IgG bound to protein A is free to combine with a specific antigen. Protein a has become an important reagent in immunology and diagnostic laboratory technology; for example, protein A with attached IgG molecules directed against a specific bacterial antigen will agglutinate bacteria that have that antigen ("coagglutination").**

385. True about protein A of staph aureus ?

a) Causes opsonization

b) Binds to Fc part of IgG

c) Stimulate phagocytosis

d) T-cell mitogen

Correct Answer - B

Ans. is 'b' i.e., Binds to Fc part of IgG [Ref Ananthanarayan 8thle p. 197, 198]

- **Protein 'A' binds to Fc terminal of IgG (IgG 1, 2 & 4 but not IgG3) and prevents opsonophagocytosis by PMNs.**
- **It is a B-cell mitogen. It is chemotactic, anti-complementary and antiphagocytic.**

386. In burn ward there is a staphylococcus infection to many patients. Where would the staphylococcus be colonized at ?

a) Throat

b) Nose

c) Vagina

d) Peri-anal region

Correct Answer - B

Ans. is 'b' i.e., Nose [Ref Jawetz Microbiology 24th/e chapter 14]

- **S. aureus is part of normal human flora. The anterior nares is the most frequent site of human colonization although the skin (especially when damaged), vagina, axilla, perineum and oropharynx may also be colonized.**
- **Staphylococci are part of normal human bacterial flora with about 30% of general population being nasal carriers and another 10% carrying it on the perineal skin.**

387. Sensitivity of urinary Antigen test of Legionella is?

a) 80%

b) 90%

c) 95%

d) 99%

Correct Answer - B

Ans. is 'b' i.e., 90% [Ref Infectious Disease Secrets edited by Robert H. Gates 2nd/e p. 5]

- **Rapid urinary antigen detection test for L. Pneumophila is a latest test. Sensitivity of the Legionella urinary antigen is 65-90%, with higher sensitivities in patients with severe disease and patients with mild disease whose specimen are concentrated prior to testing. Sensitivity with concentrated urine reaches 90%.**

388. Cat scratch disease is characterized by?

a) Caused by a virus

b) Regional lymphadenopathy is prominent

c) More common in adults

d) All of the above

Correct Answer - B

Ans. is `b' i.e. Regional lymphadenopathy is prominent

- **Cat-scratch disease (CSD) is a common and usually benign infectious disease *caused by the bacterium *Bartonella henselae*, a fastidious, intracellular, gram-negative bacteria.***
- **cases are benign and self-limiting, but lymphadenopathy may persist for several months after other symptoms disappear. The disease usually resolves spontaneously, with or without treatment, in one month.**

389. Bacillary angiomatosis is caused by:

a) *Bartonella henselae*

b) *Cryptococcus*

c) *Cryptosporidium*

d) *Pseudomonas*

Correct Answer - A

Bacillary angiomatosis is a disease of severely immunocompromised patients, is caused by *B. henselae*. It occurs primarily in HIV infected persons with CD4 count less than 100/micro L.

Disease usually presents as painless cutaneous lesions which are tan, red or purple in colour.

Common manifestations of skin lesions includes subcutaneous masses or nodules, superficial ulcerated plaques and verrucous growths.

Underneath the cutaneous lesions there can be painful osseous lesions also.

Warthin-Starry silver staining of bacillary angiomatosis lesions reveals clusters of bacilli.

Treatment involves prolonged treatment with macrolides or doxycycline.

Ref: Giladi M., Ephros M. (2012). Chapter 160. *Bartonella* Infections, Including Cat-Scratch Disease. In D.L. Longo, A.S. Fauci, D.L. Kasper, S.L. Hauser, J.L. Jameson, J.

**Loscalzo (Eds), *Harrison's Principles of Internal Medicine*,
18e.**

390. Eschar is formed by which of the following organism ?

a) B. Henslae

b) B. Anthracis

c) Staph aureus

d) E. coli

Correct Answer - B

Ans. is 'b' i.e., B. Anthracis

- **Cutaneous anthrax is also called malignant pustule. The lesion starts as *macule* then typically progress through papular and vesicular or pustular stages to the formation of an ulcer with a blackened necrotic eschar.**

391. Community acquired pneumonia in person rearing sheep ?

a) *Coxiella burnetii*

b) *Histoplasma capsulatum*

c) *Streptococcus Pneumoniae*

d) *Bacillus anthracis*

Correct Answer - A

Ans. is 'a' i.e., *Coxiella burnetii* [Ref Jawetz Microbiology 24th/e chapter 27, 48]

- ***C. burnetii* is found in ticks, which transmit the agent to sheep, goats and cattle.**
- **Workers in Slaughterhouses and in plants that process wool and cattle hides have contracted the disease (Q fever) as a result of handling infected animal tissue.**
- ***C. burnetii* causes Q-fever which presents as interstitial pneumonia.**

392. Which of the following exocrine glandular ducts are not obstructed in cystic fibrosis:

a) Pancreas

b) Lung

c) Sweat gland

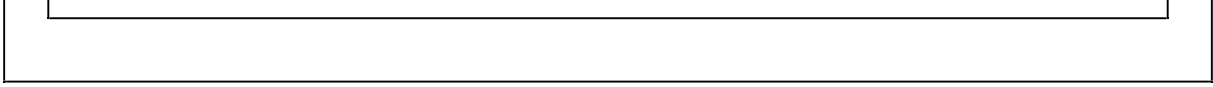
d) All of above

Correct Answer - C

Answer C. Sweat gland

Most CF patients have 3 distinct abnormal characteristics:

- **The ducts of the mucus-secreting glands are obstructed due to an increase in viscosity of these secretions leading to glandular dilatation and destruction.**
- **CF patients are prone to chronic bacterial colonization and infections.**
- **The sweat glands are not obstructed in CF patients because in serous glands such as sweat glands there are abnormal concentrations of inorganic ions, rather than glandular obstruction with thick mucus.**
- **The quantitative pilocarpine iontophoresis sweat test is a uniformly accepted method for diagnosing CF. The sweat gland ducts must be patent for this test.**
- **Obstruction of airways leads to bronchiectasis and atelectasis; pancreatic duct obstruction leads to pancreatitis and malabsorption; and plugging of bile ducts leads to obstructive jaundice.**



393. Most common cause of non gonococcal septic arthritis is ?

a) Staph aureus

b) H. influenzae

c) Streptococcus pyogenes

d) Pneumococcus

Correct Answer - A

Ans. is 'a' i.e., Staph aureus

- **Staphylococcus aureus is the most common cause of septic arthritis in all ages although group-B streptococcus is also a common cause in newborns.**
 - **H. influenzae was a common cause of septic arthritis in children but has now become rare due to the routine use of the conjugate vaccine. In young sexually active adolescents and adults two bacteria are commonly implicated.**
- 1. Staph aureus (non-gonococcal septic arthritis)**
 - 2. Neisseria gonorrhoeae (gonococcal septic arthritis).**

394. Which of the following is not true about Neisseria gonorrhoea -

- a) It is an exclusive human pathogen
- b) Some strains may cause disseminated disease
- c) Acute urethritis is the most common manifestation in males
- d) All strains are highly sensitive to penicillin

Correct Answer - D

Ans. is. 'd'.i.e., All the strains are highly sensitive to penicillin

- . Penicillin is ineffective in treatment of gonorrhoea as most of the strains are resistant to penicillin because penicillinase producing *N. gonorrhoeae* (PPNG) have spread widely.
- . Ceftriaxone is the drug of choice for gonococcal infections.
- . All other options have been explained earlier.

395. Most common cause of pyelonephritis in pregnant women?

a) E. Coil

b) Klebsiella

c) N. gonorrhoea

d) S. aureus

Correct Answer - A

Ans. is 'a' i.e., E. Coil [Ref Harrison 17th/e p. 1820-1823 & Harrison 18th/e chapter 288]

E. Coil is the most common cause of pyelonephritis in pregnant and nonpregnant women.

396. Most common mode of transmission of *Pasteurella Multocida* is:

a) Animal Bites or scratches

b) Aerosols or dust

c) Contaminated tissue

d) Human to human

Correct Answer - A

Animal bites and scratch marks are most common mode of transmission of *Pasteurella Multocida*.

Ref: Parija Subhash Chandra (2009), Chapter 38, "Haemophilus, Pasteurella, and Actinobacillus", In the book "Textbook of Microbiology and Immunology", Elsevier Publications, India, Page 341; Harrison's Principles of Internal Medicine, 17th Edition, Page 928; Textbook of Microbiology By Ananthnarayanan, 7th Edition, Page 331; Clinical Infectious Diseases By Schlossberg (2008), Page 1016

397. Nocardia is differentiated from Actinomyces by ?

a) Gram stain

b) ZN stain

c) Nocardia causes mycetoma, Actinomyces does not

d) Nocardia is facultative anaerobe

Correct Answer - B

Ans. is 'b' i.e. Z.N. Stain

Differences between Actinomyces and Nocardia

Actinomyces	Nocardia
. Anaerobic or microaerophilic	. <i>Strict aerobe</i>
. Non-acid fast	. Acid fast (N. asteroides and N. brasiliensis)
. Natural habitat mouth, intestine, vagina	. Natural habitat -- Soil
. Most infections are endogenous	. Most infections are exogenous
. Grows at 35 - 37°C	. Can grow at wide range of temperature
. Causes Actinomycosis	. Causes Nocardiasis
. Can occur with normal immunity	. More common with deficient CMI
. T/t → Penicillin	. T/t ---> Sulfonamide

- . Nocardia is acid fast, can be differentiated from Actinomyces by Ziehl Neelsen (Z.N.) stain.**
- . Both can cause actinomycetoma.**
- . Both are gram positive so can not be differentiated by Gram stain.**

**398. All are dimorphic fungi except:
March 2005**

a) Blastomycoses

b) Cryptococcus

c) Histoplasma

d) Paracoccidia

Correct Answer - B

Ans. B: Cryptococcus

The term Dimorphic fungus has been employed to potential pathogens that grow as mycelial form when incubated at room temperature under laboratory conditions and yeast phase, yeast like cells or spherule form when grown in human tissue or incubated at 37°C on synthetic laboratory media.

Highly virulent dimorphic fungi are: *Histoplasma capsulatum var. capsulatum*, *Histoplasma capsulatum var. duboisii*, *Blastomyces dermatitidis*, *Paracoccidioides brasiliensis*, *Sporothrix schenckii*, *Penicillium marneffeii* and *Coccidioides immitis*.

Dimorphic fungi cause systemic mycosis often termed as histoplasmosis, blastomycosis, paracoccidioidomycosis, sporotrichosis, penicilliosis marneffeii and coccidioidomycosis.

Cryptococcus is yeast/unicellular fungi.

399. Phototropism means ?

- a) Growing towards the sunlight
- b) Obtaining energy from sunlight
- c) Reflecting energy from light source
- d) None of above

Correct Answer - B

**Ans. is 'b' i.e., Obtaining energy from sunlight [Ref
Lehninger's 4thle p. 5]**

- **Phototropism → Trapping and using sunlight for energy.**

400. Composition of ZN stain are all EXCEPT?

a) Basic fuschin

b) Acid fuschin

c) Phenol

d) Alcohol

Correct Answer - B

Ans. is 'b' i.e., Acid fuschin [Ref Jawetz Microbiology 24th edition chapter 47]

Reagents required in Ziehl-Neelsen (ZN) staining

- 1. Carbol fuchsin → Strong Carbol fuchsin is basic fuchsin dissolved in phenol (Carbolic acid).**
- 2. Acid alcohol (or sulfuric acid).**
- 3. Methylene blue (or malachite green).**

401. Patient presented with fever, coughing, headache. He developed rash on 3rd day, what is probable diagnosis ?

a) Measles

b) Mumps

c) Small pox

d) Chicken pox

Correct Answer - A

Ans. is 'a' i.e., Measles [Ref Jawetz 24th/e chapter 40]

- **Measles** → Rash appears 3-4 days after onset of febrile illness
- **Mumps** → There is no rash
- **Small pox** → Already eradicated
- **Chicken pox** → Rash appears on day 1 of febrile illness.

402. Best method of sterilising disposable syringes is -

a) Hot air oven

b) UV rays

c) Boiling

d) Gamma rays

Correct Answer - D

Ans. is 'd' i.e., Gamma rays

Ionizing irradiations [β electrons) irradiation and γ (*photon*) irradiation] are used for sterilization of *single-use disposable* items such as needles and syringes, latex catheters and surgical gloves.

Ethylene oxide is also used for disposable plastic syringes.

403. In the list of bioterrorism which of the following belongs to category A ?

a) Plague

b) Brucella

c) SARS

d) E. coli 157: H7

Correct Answer - A

Ans. is 'a' i.e., Plague

Bioterrorism

- **A bioterrorism attack is the deliberate release of viruses, bacteria, or other germs (agents) used to cause illness or death in people, or plants. These agents are typically found in nature, but it is possible that they could be changed to increase their ability to cause disease, make them resistant to current medicine, or to increase their ability to be spread into the environment. Biological agents can be spread through the air, through water, or in food. Terrorists may use biological agents because they can be extremely difficult to detect and do not cause illness for several hours to several days. Some bioterrorism agents, like the smallpox virus, can be spread from person to person and some, like anthrax, can not.**

Bioterrorism Agent Categories

- **Bioterrorism agents can be separated into three categories, depending on how easily they can be spread and the severity of illness or death they cause. Category A**

agents are considered the highest risk and Category C agents are those that are considered emerging threats for disease.

Category A

- **These high-priority agents include organisms or toxins that pose the highest risk to the public and national security because:**
 - 1. They can be easily spread or transmitted from person to person**
 - 2. They result in high death rates and have the potential for major public health impact.**
 - 3. They might cause public panic and social disruption**
 - 4. They require special action for public health preparedness.**

Category B

- **These agents are the second highest priority because**
 - 1. They are moderately easy to spread**
 - 2. They result in moderate illness rates and low death rates**
 - 3. They require specific enhancements of CDC's laboratory capacity and enhanced disease monitoring.**

Category C

- **These third highest priority agents include emerging pathogens that could be engineered for mass spread in the future because:**
 - 1. They are easily available**
 - 2. They are easily produced and spread**
 - 3. They have potential for high morbidity and mortality rates and major health impact.**

404. True about Chick-Martin test ?

a) Phenol is taken as standard

b) Test for efficacy of disinfectant

c) Disinfection in presence of organic matter

d) All of the above

Correct Answer - D

Ans. is 'd' i.e., All of the above

There is no reliable test available to determine the efficacy of a disinfectant.

- **This is due to the number of parameters which influence disinfectant activity.**
- **Traditionally in such tests phenol is taken as the standard. Two important tests are :-**
 - i) Rideal-Walker test**
- **Suspensions containing equal numbers of typhoid bacilli are submitted to action of varying concentration of phenol and of the disinfectant to be tested.**
- **The dilution of test disinfectant which sterilises the suspension in given time, divided by the corresponding dilution of phenol, is stated as the phenol coefficient of disinfectant (phenol-1).**
- **In this test disinfectant react directly *without any organic matter* being present.**
 - ii) Chick-Martin test**
- **In this, the disinfectant *acts in the presence of organic matter* (dried yeast or feces).**



405. Medical sociology views illness as ?

a) Purely medical problem

b) Medical and environmental problem

c) Medical and psychosocial problem

d) Psychosocial problem

Correct Answer - C

Ans. is 'c' i.e., Medical and psychosocial problem [Ref Park 22nd ed p. 632, 622]

- **Medical sociology is a specialization within the field of sociology.**
- **Its main interest is in the study of health, health behaviour and medical institutions.**
- **As a specialized field, it was first proposed by Charles McIntire in 1894.**
- **It is defined as "professional endeavour devoted to social epidemiology, the study of cultural factors and social relations in connection with illness, and the social principles in medical organization and treatment."**
- **Broadly speaking medical sociology includes studies of the medical profession, of the relationship of medicine to public, and of the social factors in the aetiology, prevalence, incidence and interpretation of disease.**

406. Reconstituted measles vaccine should be used with in -

a) 1 hour

b) 3 hour

c) 6 hour

d) 12 hour

Correct Answer - A

Ans. is 'a' i.e., 1 hour

"The reconstituted vaccine should be kept on ice and used within one hour". —Park Measles vaccine :

- **Type:** Live attenuated, lyophilized (Freeze dried) vaccine,
- **Measles vaccine is live attenuated, lyophilized (Freeze dried) vaccine.**
- **Strains of virus used to prepare vaccine are Edmonston Zagreb strain (most common), Schwartz strain and Moraten strain.**
- **It is given subcutaneously in to middle one-third of antero-lateral aspect of thigh.**
- **It is given at the age of 9 months (*age can be lowered to 6 months* in epidemics & malnutrition) and is repeated at 16-24 months of age.**
- **It has protective efficacy (sero-conversion) of 95%.
Vaccination provide *life long immunity.***
- ***Incubation period of vaccine induced measles is 7 days.***
- **In post-exposure prophylaxis, measles vaccine should be given within 2-3 days of exposure. Incubation period of**

measles virus is 10 days. Incubation period of live attenuated measles virus of live vaccine is 7 days. Thus, if the vaccine is given within 2-3 days of exposure, the replication of vaccine virus takes preference over replication of wild virus.

- *Diluent* used for measles vaccine reconstitution is *distilled water or sterile water*.
- Reconstituted vaccine should be used within 1 hour.
- Usual temperature for cold chain storage is +2 to +8°C.

407. In national immunization shedule of India, measles vaccine is given at -

a) Birth

b) 6 weeks

c) 9 Months

d) 5-6 years

Correct Answer - C

Ans. is 'c' i.e., 9 months

Interval between 2 doses of DPT, OPV and Hepatitis B should not be less than one month.

Minor cough, colds and mild fever are not a contraindication to vacciation. In some states, Hepatitis B vaccine is given as routine immunization at 6th, 10th and 14th weeks.

Vitamin A is given at 9th, 18th, 24th, 30th, 36th, 42th, 48th, 54th & 60th month.

If the child has diarrhoea, give a dose of OPV, but do not count the dose and ask the mother to return in 4 weeks for the missing dose.

**Following information has been added in 22/e of Park
o New table of national immunization schedule has been added on page 115. It has schedule similar to the table mentioned above, with following additions : -**

- i) Hepatitis B vaccine (zero dose) is also given along with OPV (zero dose) and BCG at birth.**
- ii) At 5-6 years, DPT booster is given instead of DT.**

- iii) Japanese encephalitis vaccine is given at 16-24 months with DPT/OPV.**
- iv) Now, for measles vaccination, two doses are given at 9 months and 16-24 months (Previously, only one dose vaccination used to be given at 9 months).**
 - o Any number of vaccines (live and/or killed) can be given together**
 - o There need not be a gap of 1 month between a live and a killed vaccine**
 - o BCG and Measles vaccine can be given together for a case of delayed immunization**
 - o Minor fever, diarrhea, ARI or other illness is NOT a contraindication for any of the vaccines**
 - o Doses and schedule remain same even if baby is premature and/or underweight**

408. WHO immunization evaluation coverage survey is normally done in what age group?

a) 0-12 months

b) 6-12 months

c) 12-23 months

d) 9-12 months

Correct Answer - C

Ans. is 'c' i.e., 12-23 months [Ref Health policies & programme in India 4th/e p. 45]

- **WHO used 30 x 7 technique (total = 210 children) for cluster sampling in which there are 30 clusters, each containing 7 children**
- **who are 12 - 23 months old and are completely immunized for primary immunization (till measles vaccine at 9 month).**

409. Empowered action group is applicable for all states except -

a) Madhya Pradesh

b) Jharkhand

c) Rajasthan

d) Assam

Correct Answer - D

Ans. is 'd' i.e., Assam [Ref Park 22nd/e p. 417]

- **The Empowered Action Group (EAG) set up to facilitate preparation of area-specific programmes in eight states, namely, Bihar, Jharkhand, MP, Chhatisgarh, Orissa, Rajasthan, UP and Uttarakhand, which have lagged behind in containing population growth to manageable levels.**

410. Extension phase of a nuclear family begins with -

a) Marriage

b) Birth of the first child

c) Birth of second child

d) Spouse death

Correct Answer - B

Ans. is "b" i.e., Birth of the first child

**411. Zonal office of Central Drugs
Standard Control Organization is at ?**

a) Delhi

b) Ghaziabad

c) Bangalore

d) Cuttack

Correct Answer - B

Ans. is 'b' i.e., Ghaziabad

**The central government have established Four Zonal
Offices of Central Drug Standard Control Organization at :-**

1. *Mumbai*

2. *Chennai*

3. *Kolkata*

4. *Ghaziabad*

- **The zonal offices work in close collabration with state drug control administration and assisst them in securing uniform enforcement of the Drug Act and other connected legislation, on all India basis.**

412. BCG is -

a) Live vaccine

b) Killed vaccine

c) Toxoid

d) None

Correct Answer - A

Ans. is 'a' i.e., Live vaccine

BCG is a live attenuated vaccine.

413. For calculation of incidence denominator is taken as?

a) Mid year population

b) Population at risk

c) Total number of cases

d) Total number of deaths

Correct Answer - B

Ans. is 'b' i.e., Population at risk

o Denominator for calculating incidence is population at risk

414. In MCH programme, best indicator for mother and child health ?

a) MMR

b) IMR

c) Still birth rate

d) Neonatal mortality rate

Correct Answer - B

Ans. is 'b' i.e., IMR

IMR is best indicator for:-

- 1. Health status of a community.**
- 2. Level of living.**
- 3. Effectiveness of MCH services.**

IMR is second best indicator of socioeconomic status of country (under 5 mortality rate is more refined indicator for socioeconomic status).

415. Pearl index is used to calculate:
March, September 2009

a) Accidental pregnancies

b) Population

c) Fertility rate

d) Abortions

Correct Answer - A

Ans. A: Accidental Pregnancies

Methods of contraception are compared by the Pearl index. A high Pearl index stands for a high chance of unintentionally getting pregnant; a low value for a low chance.

The Pearl index will be determined by the number of unintentional pregnancies related to 100 women years. E.g. 100 women can contracept for 1 year each with the method that is going to be examined. If three pregnancies occur during this period in this group, the Pearl index will be 3.0.

416. Concentration of sodium in mMol/L in low osmolar ORS is?

a) 45

b) 75

c) 90

d) 60

Correct Answer - B

The efficacy of ORS solution for treatment of children with acute non-cholera diarrhoea is improved by reducing its sodium concentration to 75 mEq/l, its glucose concentration to 75 mmol/l, and its total osmolarity to 245 mOsm/l.

Reduced osmolarity ORS	grams/litre	Reduced osmolarity ORS	mmol/litre
Sodium chloride	2.6	Sodium	75
Glucose, anhydrous	13.5	Chloride	65
Potassium chloride	1.5	Glucose, anhydrous	75
Trisodium citrate, dihydrate	2.9	Potassium	20
		Citrate	10
		Total Osmolarity	245

**417. ESI act does not cover which of the following:
*September 2010***

a) Hotel employee

b) Transpoters

c) Railway employees

d) Factory employees

Correct Answer - C

Ans. C: Railway employees

This act covers all employees including engaged through the contracts but whose remuneration does not exceed Rs. 10, 000 p.m. including staff in the class of administrative, canteen, loading-unloading, security, etc.

Apprentices who are appointed for learning the work with no right of being absorbed in service, do not come with the ambit of this act.

418. Kishori Shakti Yojana covers the age group of:

a) 10-15 years

b) 11-18 years

c) 15-25 years

d) None of the above

Correct Answer - B

Kishori Shakti Yojana has been implemented in 507 ICDS blocks and deals with improvement of girls in the age group of 11-18 years.

Kishori Shakti Yojana is being implemented using the infrastructure of ICDS

The scheme targets adolescent girls in the age group of 11 to 18 years and addresses their needs of self development, nutrition and health status, literacy and numerical skills, vocational skills etc

Ref: Health policies and programmes in India, D.K. Taneja 11th edition page: 316

419. Janani Suraksha Yojana is applicable to poor women of low performing states for ?

a) First 2 pregnancies

b) First 3 pregnancies

c) First 2 live births

d) All births

Correct Answer - D

Ans. is 'd' i.e., All births

Janani Suraksha Yojana

The National Maternity Benefit scheme has been modified into a new scheme called Janani Suraksha Yojana.

It was launched on *12th April, 2005.*

The objectives of scheme are reducing maternal and infant mortality through encouraging delivery at health, institutions, and focusing at institutional care among women in below poverty line.

Salient features of JSY:

- 1. It is 100% centrally sponsored**
- 2. It combines 'benefit of cash assistance with institutional care'**
- 3. Eligibility of cash assistance.**
- 4. *In low performing states (LPS) : All women undergoing institutional deliveries***
- 5. *In high performing states (HPS) : Below poverty line women aged 19 years and above; SC/ST pregnant women***

6. **Limitation of cash assistance**
7. ***In low performing states (LPS) : All births in institutions***
8. ***In high performing states (HPS) : upto 2 live births.***

420. Inability to perform physical activity without discomfort falls under

a) NYHA class 1

b) NYHA class 2

c) NYHA class 3

d) NYHA class 4

Correct Answer - D

Ans. d. NYHA class 4

Class IV Patients with cardiac disease resulting in inability to carry on any physical activity without discomfort.

Symptoms of heart failure or the anginal syndrome may be present even at rest.

If any physical activity is undertaken, discomfort is increased

421. The provisions under Janani Shisna Suraksha Karvakram (.1SSK) include all of the following except:

a) Free food to the mother in the hospital

b) Cash incentive for institutional deliveries

c) Free transport to the mother and baby to/from hospital

d) Free treatment of the neonate and infant in all public health facilities

Correct Answer - B

Ans. b. Cash incentive for institutional deliveries

Janani-Shishu Suraksha Karyakram (JSSK):

- **The initiative entitles all pregnant women delivering in public health institutions to absolutely free and no expense to delivery, including cesarean section.**
- **The entitlements include free drugs and consumables, free diet up to 3 days during normal delivery and up to 7 days for cesarean section, free diagnostics, and free blood wherever required.**
- **This initiative also provides for free transport from home to institution, between facilities in case of referral and drop back home.**
- **Similar entitlements have been put in place for all sick newborns accessing public health institutions for treatment till 30 days after birth.**
- **This has been expanded to cover sick infants**
- **The scheme aims to eliminate out of pocket expenses**

**incurred by the pregnant women and sick new borns while
accessing services at Government health facilities**

422. Kuppuswamy Scale - include A/E

a) Education

b) Occupation

c) Housing

d) Monthly income

Correct Answer - C

Ans. is 'c' i.e., Housing

Kuppuswamy's socio-economic scale?

- **important tool for assessing socio-economic status of family**
- **Include 3 parameters?**
- **Education of head of family**
- **Occupation of head of family**
- **Family income per month**
- **Family is divided into?**
- **Upper class**
- **Upper middle**
- **Lower middle**
- **Upper lower**
- **Lower**

423. You are conducting a survey in your village and the person you are interviewing is a 32 year old post graduate working as a clerk. His total family income is 20,000 Rs per month. According to Kuppuswamy's socio economic status scale, he belongs to:

a) Upper socioeconomic class

b) Upper socioeconomic class

c) Lower middle socioeconomic class

d) Upper lower socioeconomic class

Correct Answer - B

Kuppuswamy's socio economic status scale takes into account education, occupation and monthly family income.

Since he is a post graduate he gets 6 points for education. His job as a clerk gives him 5 points and a monthly family income of 20000 Rs gives him 12 points which gives him a total of 23 points and so he belongs to upper middle socioeconomic class.

Socio economic status	Total score
Upper socio economic status	26 - 29
Upper middle socioeconomic status	16 - 25

Lower middle socioeconomic status	11 - 15
Upper lower socioeconomic status	5 - 10
Lower socioeconomic status	<5

Ref: Park, Edition 21, Page 639

424. Which of the following is characteristic of late expanding stage of demographic cycle?

a) High death or birth rates

b) High death or birth rates

c) Low birth and death rate

d) Increasing birth rates and decreasing death rates

Correct Answer - B

Late expanding stage of demographic cycle is characterised by a *fall in birth rate and a further decline in death rate*. In this stage, population continues to grow because births exceed deaths. India is in this phase of demographic cycle.

425. The 'Year of Great divide' with regard to population growth in India is ?

a) 1921

b) 1931

c) 1941

d) 1951

Correct Answer - A

Ans. is 'a' i.e., 1921 [Ref Park 22nd/e p. 443]

- **India's population has been steadily increasing since 1921. The year 1921 is called the "big divide" because the absolute number of people added to the population during each decade has been on the increase since 1921.**

426. Sample registration system is done once in ?

a) 6 months

b) 1 year

c) 2 years

d) 5 years

Correct Answer - A
Ans. is 'a' i.e., 6 Months

427. Family planning became as voluntary from which year?

a) 1977

b) 1953

c) 1992

d) 1997

Correct Answer - A

Ans. is 'a' i.e., 1977 [Ref Park 22nd/e p. 455]

- **National population policy was further modified and re-announced in 1977. In this new policy, what was reinforced was education and health. The latter component of the reformulated policy included the general as well as maternal and child health both. A voluntary family planning was also introduced here on.**

428. Which is not included in millennium development goals?

- a) Number of oral pills intake in a community
- b) Proportion of children underweight
- c) Proportion of population using biomass fuel
- d) Tuberculosis morbidity and mortality

Correct Answer - A

Ans. is 'a' i.e., Number of oral pills intake in a community
The indicators included in MDG are:?

- 1) *Prevalence of underweight children (under five years of age).*
- 2) Proportion (%) of population below minimum level of dietary energy consumption.
- 3) Under-five mortality rate.
- 4) Infant mortality rate.
- 5) Proportion (%) of 1 year old children immunized for measles.
- 6) Maternal mortality ratio.
- 7) Proportion (%) of births attended by skilled health persons.
- 8) HIV prevalence among young people.
- 9) Condom use in high-risk population.
- 10) Ratio of children orphaned/non-orphaned in schools.
- 11) Malaria death rate per 100,000 in children (0-4 years of age).
- 12) Malaria death rate per 100,000 in all age groups.

- 13) Malaria prevalence rate 100,000 population.**
- 14) Proportion (%) of population under-age 5 in malaria risk areas using insecticide treated bed nets.**
- 15) Proportion (%) of population under-age 5 with fever being treated with anti-malarial drug.**
- 16) Tuberculosis death rate per 100,000.**
- 17) Tuberculosis prevalence rate per 100,000.**
- 18) *Proportion (%) of smear-positive pulmonary tuberculosis cases detected and put under directly observed treatment short-course (DOTS).***
- 19) *Proportion (%) of smear-positive pulmonary tuberculosis case detected cured under directly observed treatment short-course (DOTS).***
- 20) *Proportion (%) of population using biomass fuel***
- 21) *Proportion (%) of population with sustainable access to an improved water source, rural.***
- 22) *Proportion (%) of population with sustainable access to an improved water source, urban.***
- 23) *Proportion (%) of urban population with access to improved sanitation.***
- 24) *Proportion (%) of population with access to affordable essential drugs on a sustainable basis***

429. In Millennium Development Goals (MDGs), how many goals are health related?

a) 1 out of 8

b) 2 out of 8

c) 3 out of 8

d) 4 out of 8

Correct Answer - C

Ans. is 'c' i.e. 3 out of 8

- **Goal 2: Achieve universal primary education.**
- **Goal 3: Promote gender equality and empower women.**
- **Goal 4: Reduce child mortality (Reduce by two-thirds the under-five mortality rate).**
- **Goal 5: Improve maternal health (Reduce by three-quarters the maternal mortality ratio).**
- **Goal 6: Combat HIV/AIDS, malaria and other diseases.**
- **Goal 7: Ensure environmental sustainability.**
- **Goal 8: Develop a global partnership for development.**

430. Rickettsial pox is transmitted by a house mice mite. The symptoms similar to chicken pox is caused by which of the following?

a) *Rickettsia rickettsiae*

b) *Rickettsia akari*

c) *R. typhi*

d) *Rickettsia conori*

Correct Answer - B

Rickettsial pox, caused by *Rickettsia akari*, is transmitted to humans by the house mouse mite *Liponyssoides sanguineus*.

It is also known as vesicular rickettsiosis, a disease similar to chicken pox.

The disorder begins with the bite of an infected mite, which results in a black eschar. The classic triad of rickettsialpox consists of fever, eschar, and rash. It is endemic in US. It is self-limited over 7-10 days.

Rickettsia rickettsia is the cause of the tick-borne Rocky Mountain spotted fever.

R. typhi is the flea-borne cause of endemic typhus.

Rickettsia conori causes Mediterranean spotted fever, also known as African tick typhus.

431. Which of the following is a scrub typhus vector?

a) Trombiculid mite

b) Louse

c) Tick

d) Reduviid bug

Correct Answer - A

Scrub typhus Infection is seen in the Far East, especially Myanmar (Burma), India, Sri Lanka, New Guinea, Japan, and Taiwan.

The larval stage (chigger) of various trombiculid mites serves both as a reservoir, through transovarial transmission, and as a vector for infecting humans and rodents.

Ref: Brooks G.F., Carroll K.C., Butel J.S., Morse S.A., Mietzneron T.A. (2010). Chapter 26. Rickettsia & Ehrlichia. In G.F. Brooks, K.C. Carroll, J.S. Butel, S.A. Morse, T.A. Mietzneron (Eds), Jawetz, Melnick, & Adelberg's Medical Microbiology, 25e.

432. Which of the following drugs are supplied free of cost to the government Hospital by NACO?

a) Nevaripinc

b) Zidovudine

c) Nevaripinc + Zidovudine

d) Zidovudine + Lamivudine+Nevarapine

Correct Answer - D

**Ans. is 'd' i.e., Zidovudine + Lamivudine+Nevarapine
NACO centers providing ART (as of sept 2006)**

3 The National AIDS control organization (NACO) has increased the numbers of centres providing ART from 54 to 91 centres with another 9 more centres also getting operational soon.

o MI the 91centres have specially appointed and trained doctors, counsellors and laboratory technicians to help initiate patients on ART and follow them regularly.

o At these 91 centres medicines for treating 85000 patients have been made available.

o The ART is a *combination of three potent drugs*, which is being given to the persons with advanced stage of AIDS.

o Apart from providing *free treatment*, all the ART centres are providing counselling to the infected persons so that they maintain regularly of their medication.

o NACO has branded the STIIRTI services as "Suraksha clinic" and has developed a communication strategy for

generating demand for these services

generating demand for these services.

o Pre-packed colour coded STI/RTI kits have been provided for free supply to all designated STI/RTI clinics.

Kit 1 —> *Grey*, for urethral discharge. ano-rectal discharge. cervicitis.

Kit 2 —> *Green*, for vaginitis

Kit 3 —> *White*, for genital ulcers

Kit 4 --> *Blue*, for genital ulcers

Kit 5 —> *Red*, for genital ulcers

Kit 6 ---> *Yellow*, for lower abdominal pain

Kit 7 —> *Black*, for scrotal swelling.

433. Daily physical activity/exercise is which type of prevention ?

a) Primordial

b) Primary

c) Secondary

d) Tertiary

Correct Answer - B

Ans. is 'b' i.e., Primary [Ref: Park 23rdie p. 44]

Life style & behavioral changes, e.g. doing exercise is health promotion, a type of primary

434. True statement regarding 'at risk baby':
September 2009

a) Birth weight less than 2.75 kg

b) Weight less than 70% of the expected weight

c) Birth order more than 3

d) Ist degree malnutrition

Correct Answer - B

Ans. B: Weight less than 70% of the expected weight

The basic criteria for identifying 'at risk' babies include:

- Birth weight less than 2.5 kg.
- Twins
- Birth order 5 and more
- Artificial feeding
- Weight below 70% of the expected weight (II and III degrees of malnutrition)
- Failure to gain weight during three successive months
- Children with diarrhea, PEM
- Working mother/ one parent

435. Which is not a criteria for overcrowding ?

a) No. of persons

b) Sex separation

c) Door and window

d) Floor space

Correct Answer - C

Ans. is 'c' i.e., Door and window

436. Which of the following is incorrect about ASHA:

September 2009, March 2013 (g)

a) 1 ASHA worker per 1000 population

b) Resident of local community

c) She must be educated till 4th class

d) 25-45 years of age

Correct Answer - C

Ans. C: She must be educated till 4th class

One of the key components of the National Rural Health Mission is to provide every village in the country with a trained female community health activist - 'ASHA' or Accredited Social Health Activist.

Selected from the village itself and accountable to it, the ASHA will be trained to work as an interface between the community and the public health system.

General norm of selection would be one ASHA per 1000 population.

Selection of ASHA:

Should be resident of the same village

Preferably in the age group of 25-45 years

Formal education up to eighth class

Having communications skills and leadership.

Following are the key components of ASHA:

- **The ASHAs will receive performance-based incentives for promoting universal immunization, referral and escort**

services for Reproductive and Child Health (RCH) and other healthcare programmes, and construction of household toilets.

- **ASHA will be the first port of call for any health related demands of deprived sections of the population, especially women and children, who find it difficult to access health services.**
- **ASHA will provide information to the community on determinants of health such as nutrition, basic sanitation and hygienic practices, healthy living and working conditions, information on existing health services and the need for timely utilisation of health and family welfare services.**

437. Under the National Rural Health Mission, an ASHA will receive financial remuneration for all of the following except:

a) Institutional deliveries

b) Measuring the birth weight of neonates

c) Zero dose of DPT and OPV

d) Registration of births

Correct Answer - C

Answer- C. Zero dose of DPT and OPV

- **ASHA Payments under Janani Suraksha Yojana (JSY): On 45th Day**
- **6 visits in institutional deliveries (Day 3, 7, 14,21,28,42)**
- **7 visits in home deliveries (Day 1, 3,7,14,21,28, 42)**
- **Birth weight record**
- **Immunized with BCG, first dose of OPV & DPT**
- **Birth registration**
- **Mother & child are safe**
- **Other ASHA Payments**
- **Institutional deliveries**
- **Arrange transport of AN mother**
- **Escort AN mother to facility**
- **Completed immunization upto 1 & 2 years of age**
- **Pulse polio immunization**
- **Family planning services**
- **Sanitary napkins to adolescent girls**

- **Promote use of sanitary toilets**
- **DOTS provider**
- **Leprosy treatment**
- **Peripheral smear for malaria**
- **Malaria treatment**

438. Lepromin test is strongly positive

in:

March 2013

a) Tuberculoid (TT)

b) Lepromatous (LL)

c) Borderline lepromatous (BL)

d) Borderline borderline (BB)

Correct Answer - A

Ans. A i.e. Tuberculoid (TT)

439. All are monitoring indices of leprosy control project except -

a) New case detected per year

b) Rate of new cases with disability

c) Lepromin test positivee population

d) Treatment completion rate

Correct Answer - C

Ans. is 'c' i.e., Lepromin test positivee population [Ref Park 22nd/e p. 301-302]

Core indicators for monitoring the progress of leprosy eradication programme are :

- 1. Number and rate of new cases detected per 100000 population per year.**
- 2. Rate of new cases with grade-2 disabilities per 100000 population.**
- 3. Treatment completion/cure rate.**

440. Minimum number of antenatal visits :

a) 3

b) 1

c) 5

d) 6

Correct Answer - A
3

441. Secondary prevention is applicable to ?

a) Causal factors

b) Early stage of disease

c) Late stage of disease

d) None of the above

Correct Answer - B

Ans. is 'b' i.e., Early stage of disease [Ref Park 22nd/e p. 41, 42]

- **Primordial prevention → Before risk factor present.**
- **Primary prevention → Before onset of disease (risk factor present).**
- **Secondary prevention → In early stage of disease.**
- **Tertiary prevention → Late stage of disease.**

442. Right to life ?

a) Is a moral principle

b) Signifies that every human being has the right to live

c) Advocates against the unjust killing of one human being by another

d) All the above

Correct Answer - D

Ans. is 'd' i.e., All of the above [Ref Wikipedia] Right to life:

- **The right to life is a moral principle based on the belief that a human being has the right to live and, in particular, should not to be unjustly killed by another human being. The concept of a right to life is central to debates on the issues of euthanasia, capital punishment, abortion, self-defense and the morality of war.**

443. Who takes care of the blind data surveys register ?

a) District Health Society

b) State Health Society

c) Central Program Division, DGHS

d) Village Health Guide

Correct Answer - A

Ans. is 'a' i.e., District Health Society [Ref <http://npcb.nic.in/writereaddata/mainlinkfile/File106.pdf>]

Composition of the district health society

- **The District Health Society has a maximum of 15 members. Chairman, Vice-Chairman, Member Secretary, Technical Advisor, and other Members like Medical Superintendent! Civil Surgeon of Distt. Hospital, District Education Officer, Representatives from NGOs engaged in eye care services, District Mass media/ IEC officer, Prominent practicing eye surgeons.**

444. Dracanculosis elimination program, which of the following activities is not evaluated to know the extent of goal achievement ?

a) Provision of protected water sources

b) Health education

c) Chemical disinfection of water sources

d) Registration of new cases

Correct Answer - D

Ans. is 'd' i.e.,Registration of new cases

The extent to which Dracanculosis Medinensis Elimination program goals are achieved can be determined by calculating the the percentage of planned activities that are actually carried out. A list of these activities is as follows:

- Provision of protected water sources.**
- Health education**
- Chemical disinfection of the water sources**
- Treatment of patients**
- Training**

**445. Partial-Birth Abortion Ban Act pas
passed in ?**

a) 1995

b) 2000

c) 2003

d) 2008

Correct Answer - C

**Ans. is 'c' i.e.,2003 [Ref Oxford encyclopedia of women in
world history p. 4]**

- **Partial-Birth Abortion Ban act was a bill introduced in the congress of united states in 1995.**
- **It was passed in 2003.**

446. Main period of communicability of whooping cough?

a) Incubation period

b) Paroxysmal stage

c) Catarrhal stage

d) Convalescent stage

Correct Answer - C

Ans. is 'c' i.e., Catarrhal stage [Ref: Park 22nd ed p. 155,156]

- **Pertussis, also called '100 day cough', is caused by *Bordetella pertussis* (only 5% cases are caused by *B. parapertussis*).**
- **there is no cross immunity between *B. pertussis* and *B. parapertussis*.**
- **Period of infectivity (communicability) extends from a week after exposure to about 3 weeks after the onset of paroxysmal stage. Catarrhal stage is most infective. Secondary attack rate is high, i.e. 90%.**

447. Obesity predisposes to all, except ?

a) Diabetes

b) Colon cancer

c) Lung cancer

d) Breast cancer

Correct Answer - C

Ans. is 'c' i.e., Lung cancer

Obesity increases the risk of following diseases :-

- **Greatly increased risk : NIDDM, gall bladder disease, insulin resistance, dyslipidaemia, sleep apnea and breathlessness.**
- **Moderately increased risk : Type-2 DM, hypertension, CHD, osteoarthritis (knee), hyperuricemia and gout.**
- **Slight increased risk : Cancers (breast, endometrium, colon), PCOD, impaired fertility, low back pain, and fetal defects.**

448. True about varicella vaccine is ?

a) Poorly immunogenic

b) Duration 4-6 months

c) Avoid salicylates for 4-6 weeks

d) Given to child < 12 months when they do not have chicken pox

Correct Answer - C

Ans. is 'c' i.e., Avoid salicylates for 4-6 weeks [Ref Park 22nd/e p. 137]

- **A live attenuated varicella virus vaccine is safe and currently recommended between 12-18 months of age who have not had chicken pox.**
- **The vaccine is very immunogenic, sero-conversion occurs in 95% of children after a single dose.**
- **A duration of immunity is not known, but is probably 10 years.**

449. Micro-organism used as weapon in biological terrorism -

a) Small pox V

b) Rabies V

c) Ebda V

d) Influenza CV

Correct Answer - A

Ans. is 'a' i.e., Small pox V

. Some *microbial pathogens* can be used as *potential weapons of war or terrorism Bioterrorism.*

450. Paradoxical carriers are-

a) A person who acquires the microorganism due to his contact with the patient.

b) A person who acquires the microorganism another carrier.

c) A person who is clinically recovered from an infectious disease but still capable of transmitting the infectious agent to others.

d) None

Correct Answer - B

Ans. B. A person who acquires the microorganism another carrier.

Paradoxical carrier are defined as person who acquires the microorganism another carrier.

**451. Main highlight of IMNCI
is ?**

a) 0-7 days of infant

b) 0-14 days of infant

c) Sick infant more than sick child

d) 0-5 years of age

**Correct Answer - D
Ans. is `d' i.e., 0-5 years of age**

452. IMNCI for sick child involves following colors except ?

a) Red

b) Green

c) Yellow

d) Pink

Correct Answer - C
Ans. is `d' i.e., Pink

453. 2.2 kg 6 days old baby had poor feeding, letharginess. According to IMNCI, true is ?

a) Possible serious bacterial infection

b) Treated at home

c) Refer urgently

d) a & c are true

Correct Answer - D
Ans. is 'd i.e., a & c are true

454. 4 month Infant with cough, respiratory rate > 60/min, with no retraction, management (According to IMNCI protocol) ?

a) IM antibiotic & refer urgently

b) Oral antibiotic, explain danger sign & follow up

c) Explain danger sign & follow up

d) IM antibiotic & hospitalise

Correct Answer - B

Ans. is 'b' i.e., Oral antibiotic & explain danger sign & follow up

455. Regarding IMNCI, when should refer the child to higher centre?

a) Pneumonia

b) Severe pneumonia

c) Persistent diarrhea

d) All of above

Correct Answer - B

Ans. is 'b' i.e., Severe pneumonia

- **Refer urgently to hospital after giving instruction in following cases :?**
 1. **Possible serious bacterial infection**
 2. **Severe jaundice**
 3. **Diarrhoea with severe dehydration**
 4. **Severe persistent diarrhoea (not PERSISTENT DIARRHOEA)**
 5. **Severe dysentery**
 6. **Not able to feed or severe malnutritions**
 7. **Severe pneumonia or very severe disease**
 8. **Severe complicated measles**
 9. **Mastoiditis**
 10. **Severe malnutrition**
 11. **Severe anemia**

456. API > 2 criteria and management of it?

a) Regular 2 round of Insecticide spray

b) Surveillance every fortnight

c) Presumptive treatment of all fever cases

d) All of above

Correct Answer - D

Ans. is 'd' i.e., All of above

Areas having Annual Parasite Index (API) > 2

- Regular 2 rounds of insecticidal spray with DDT/Malathion/Synthetic Pyrethroids at the dose of 1, 2, 0-5 mg/sq meter respectively.
 - Entomological assessment for vector behavior and development of insecticidal resistance
 - Active and passive surveillance is carried out on regular basis every fortnight.
 - Presumptive Treatment to all fever cases and radical treatment to all slide positive cases is given
- Areas having Annual Parasite Index(API) < 2
- Regular spray is not carried out but focal' spray is carried out around falciparum cases detected during surveillance
 - Regular passive surveillance once in a fortnight
 - Treatment -All positive cases to receive radical treatment
 - Follow up-All positive cases to be followed up for 1 year at monthly intervals after completion of radical treatment
 - Epidemiological investigation of all malaria positive cases.

This may also include mass blood survey.

457. Which of following is not derived from first pouch?

a) Auditory tube

b) External acoustic meatus

c) Tympanic cavity

d) Mastoid antrum

Correct Answer - B

Ans. is 'b' i.e., External acoustic meatus

Ref: Langman's Medical Embryology 12th/e p. 326,366

458. Which of the following is not a derivative of first arch?

a) Pinna

b) Auditory tube

c) Mastoid

d) Cochlea

Correct Answer - D
Ans. is'd'i.e., Cochlea

459. Which of following is derived from otic placode?

a) Mastoid

b) Tympanic antrum

c) Ear ossicles

d) Cochlea

Correct Answer - D

Ans. is'd'i.e., Cochlea

Ref: Langmann' 70th/e p. 92,403

Otic placode form otic vesicle which in turn divides into :-

- **Ventral component that gives rise to the saccule and cochlear duct.**
- **Dorsal component that forms the utricle, semicircular canals, and endolymphatic duct.**

460. Which of the following is a derivative of otic capsule?

a) Membraneous labyrinth

b) Perilymphatic labyrinth

c) Bony labyrinth

d) Ossicles

Correct Answer - C

Ans. is 'i.e., Bony labyrinth

Ref Dhingra 4h/e p. 86; Langmann 317

- **Otic capsule or the bony labyrinth ossifies from 14 centres, the first one appears in the region of cochlea at 16 weeks and the last one appears in the postero lateral part of posterior semicircular canal at 20d week**

461. All these structures are found in the lateral nasal wall except:

a) Superior turbinate

b) Vomer

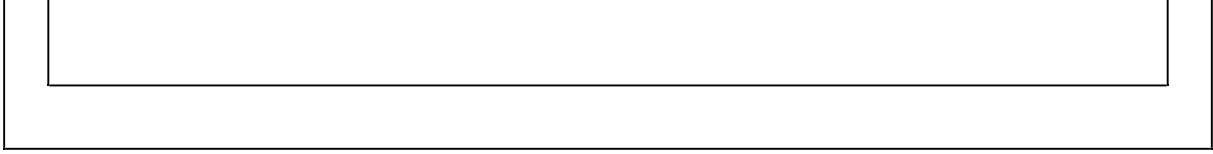
c) Agger nasi

d) Hasner's valve

Correct Answer - B

The lateral nasal wall is composed of three turbinates

- Superior turbinate
- Middle turbinate
- Inferior turbinate Below each turbinate is the respective meatus:
 - Inferior meatus
 - Middle meatus
 - Superior meatus
- Above the superior turbinate lies the sphenoidal recess.
- Just anterior to the middle meatus, is a small crest/mound on the lateral wall called as Agger nasi.
 - In the inferior meatus - opens the nasolacrimal duct guarded at its terminal end by a mucosal valve k/a Hasner's valve.
 - Vomer is an independent bone which forms the posterior inferior part of nasal septum (i.e. medial wall of nose).



462. Internal nasal valve is bounded by?

a) Columella

b) Lower lateral cartilage

c) Upper lateral cartilage

d) Alae

Correct Answer - C

Ans. is'c'i.e., Upper lateral cartilage

Rel Gray's anatomy Ch. 32

Disease of Ear, Nose and Throat By Mohan Bansal p. 287

- **Mink gave the nasal valve anatomy in 1903. It was described as the area with highest nasal resistance.**
- **It is bound superiorly between the caudal end of the upper lateral cartilage and the nasal septum;**
- **Inferiorly The nasal floor;**
- **Laterally the bony piriform aperture and the fibrofatty tissue.**
- **Posteriorly the head of the inferior turbinates.**
- **Its normal cross sectional area is 55 - 83 mm².**

463. Which of the following is not a suprahyoid space?

a) Masticator space

b) Peritonsillar space

c) Anterior visceral space

d) Parapharyngeal space

Correct Answer - C

Ans. is 'c' i.e., Anterior visceral space

- **Ref: Ballenger's Otorhinolaryngology: Head and Neck Surgery 1/e by James Byron Snow, Phillip A. Wackym, John Jacob Ballenger p. 1021, Cummings Otolaryngology-Head and Neck Surgery 5/e, Ch. 14**
- **Suprahyoid neck**
These spaces are :-
- **Peritonsillar space**
- **Submandibular & sublingual spaces**
- **Prestyloid parapharyngeal space**
- **Masticator space**
- **Parotid space**

464. Which of the following is not a function of nose?

a) Olfaction

b) Air pressure control

c) Humidification of air

d) Temperature control of inspired air

Correct Answer - B

Ans. is 'b' i.e., Air pressure control

Ref Dhingra 4n/e p. 133

Functions of the nose are classified as r

1) Respiration

2) Air conditioning of inspired air

- **Filtration and purification**

- **Temperature control of the inspired air**

- **Humidification**

3) Protection of lower airway

- **Mucociliary Mechanism**

- **Secretion of Enzymes and immunoglobulins**

- **Sneezing**

4) Vocal resonance

5) Nasal reflex functions: Smell of a palatable food cause reflex secretion of saliva and gastric juice. Irritation of nasal mucosa causes sneezing.

6) Olfaction

465. Pitch discrimination is best between ?

a) 0-100 Hz

b) 100-1000 Hz

c) 1000-4000 Hz

d) 20-20,000 Hz

Correct Answer - B
Ans. is'b'i.e., 100-1000 Hz
Ref Dhingra p. 18-20

466. Threshold of hearing in a young normal adult is ?

a) 0 dB

b) 10 dB

c) 20 dB

d) 30 dB

Correct Answer - A

Ans. is 'a' i.e., 0 dB

[Rd Dhingra 4n/e p. 21]

Audiometric zero

- **Threshold of hearing, i.e. The faintest intensity which a normal healthy person can hear will vary from person to person.**
- **The International Standards Organisation (ISO) adopted a standard for this, which is represented as the zero level on the audiometer (0 dB).**
- **According to ISO, audiometric zero is the mean value of minimal audible intensity in a group of normally hearing healthy young adults.**

467. In infant most sensitive audiometric screening is ?

a) Electrocochleography

b) BERA

c) Cortical evoked response

d) Tympanometry

Correct Answer - B

Ans. is 'b' i.e., BERA

Ref: Logan turner Ltr/e p. 416, 417; Anirban biswas clinical audio vestibulometry 3'd/e p. 68, 99

- **BERA (brain stem evoked response audiometry) is now the most widely used method to estimate hearing threshold in infants.**

468. In Bing test, on alternately compressing and releasing the external acoustic meatus, the sound increases and decreases. What does this indicate?

a) Otosclerosis

b) Sensorineural deafness

c) Adhesive otitis media

d) Chronic suppurative otitis media

Correct Answer - B

Bing test

It is a test of bone conduction which examines the effect of occlusion of the ear canal and the hearing.

A vibrating tuning fork is placed on the mastoid while the examiner alternately closes and opens the ear canal by pressing on the tragus inwards.

A normal person / one with sensorineural hearing loss hears louder when ear canal is occluded and softer when the canal is open.

A patient with conductive hearing loss will appreciate no change.

469. Stygia most common nerve affected ?

a) Glossopharyngeal nerve

b) Abducent nerve

c) Auditory nerve

d) Greater Petrosal nerve

Correct Answer - A

Ans. is'a'i.e., Glossopharyngeal nerve

Ref: Essentials of Otolaryngology by Frank E p. 221; Scott-Brown's Otolaryngology //e Vol .-2 p. 2081

- **Elongated styloid process protrudes into the tonsillar fossa and puts pressure on the trigeminal, glossopharyngeal, vagus or facial nerves.**

470. Aspirin triad is?

a) Churg-Strauss syndrome

b) Kartagener's syndrome

c) Sampter's syndrome

d) Young syndrome

Correct Answer - C

Ans. is'c'i.e., Sampter's syndrome

Ref: Dhingra 4'h/e p. 162)

- **Samter's triad is also called as aspirin triad and consists of nasal polyp, asthma and aspirin intolerance.**

471. Sinonasal neoplasm is commonly seen in which industry?

a) Fishing

b) Building

c) Hard wood

d) Iron steel

Correct Answer - C

Ans. is 'c' i.e., Hard wood

Ref: Dhingra S'h/e p. 219, 220

- **Paranasal sinus cancer is uncommon and represents only 0.2 to 0.8% of all malignancies.**
- **The majority of paranasal sinus malignancies (50-80%) originate within the maxillary sinus antrum.**
- **Malignancies rarely occur within the other sinuses and originate in the ethmoid, frontal, and sphenoid sinuses in 10%, 1% and 21% respectively.**
- **It is seen more commonly in people working in hardwood furniture industry, nickel refining, leather work, and manufacturer of mustard gas.**

472. Nasopharyngeal carcinoma seen in which occupation?

a) Asbestos industry

b) Cement industry

c) Wood workers

d) Chimney workers

Correct Answer - C

Ans. is 'c' i.e., Wood workers

Ref Dhingra 4h/e p. 235; Nasopharyngeal carcinoma By Andrew Van Hasselt,

- **Alan G. Gibb 2d/e p. 4**
- **Wood dusts exposure is a risk factor of nasopharyngeal carcinoma and**
- **Adenocarcinoma of PNS.**
- **Formaldehyde exposure is a risk factor of Nasopharyngeal carcinoma.**

473. Blom singer prosthesis for voice rehabilitation is used in?

a) Total laryngectomy

b) Near total laryngectomy

c) Hemi laryngectomy

d) None

Correct Answer - A

Ansis'a'ie., Total Laryngectomy

- [Ref Dhingra /ep.288.
- **Vocal rehabilitation after total laryngectomy**
After laryngectomy, various methods can be used for communication :-
 - 1) **Esophageal speech:**
 - Patient is taught to swallow air and hold it in the upper esophagus and then slowly eject it from the esophagus into the pharynx.
 - It is the most commonly used method.
 - 2) **Artificial larynx:**
 - Who Fail to learn esophageal speech.
 - The Device Include (1) Electrolarynx and (ii) Transoral Pneumatic device.
 - 3) **Tracheo-esophageal speech:**
 - Attempt is made to carry air from trachea to esophagus or hypopharynx by creation of skin-lined fistula or by placement of an artificial prosthesis.
 - Bloom singer prosthesis and provox prosthesis are used

for T-E speech.

474. Hot potato voice is characteristic of ?

a) Nasopharyngeal carcinoma

b) Glottic carcinoma

c) Subglottic carcinoma

d) Supraglottic carcinoma

Correct Answer - D

Ans. is 'd' i.e., Supraglottic carcinoma

Clinical features of supraglottic carcinoma

- **Pain on swallowing is the most frequent initial symptom -- Devita 7th/e p. 698**
- **Mass in neck may be the first sign.**
- **Hoarsness is a late symptom.**
- **Pain may be referred to ear by vagus nerve and auricular nerve of Arnold.**
- **Late symptoms include foul breath, dysphagia and aspiration.**
- **Large tumors can cause "hot potato voice/muffled voice".**
- **Hemoptysis, sore throat, shortness of breath, stridor, otalgia and aspiration pneumonia may also occur.**

475. Causes of epistaxis are all EXCEPT:

- a) Nose picking
- b) Foreign body
- c) Allergic rhinitis
- d) Thrombocytopenia

Correct Answer - A

Causes of Epistaxis:

- Idiopathic
- Local Causes
 - Trauma:* Finger nail trauma, injuries of nose, intranasal surgery, face and base of skull, hard-blowing of nose, violent sneeze.
 - Infections:* Viral rhinitis, nasal diphtheria, acute sinusitis, atrophic rhinitis, syphilis septal perforation, granulomatous lesion of the nose, etc.
 - Foreign bodies:* Rhinolith, Maggots, leeches
 - Neoplasms of nose and paranasal sinuses:* Hemangioma, Papilloma, Carcinoma
 - Atmospheric changes:* High altitudes, sudden decompression (causing rupture of nasal septum)
 - Nasopharyngeal Adenoiditis, Juvenile angiofibroma, Malignant tumor
- General Causes
 - Cardiovascular:* Hypertension, arteriosclerosis, mitral stenosis, aortic regurgitation
 - Disorders of blood and blood vessels:* Aplastic anemia, leukemia, thrombocytopenia, purpura, hemophilia, Christmas disease, scurvy, vitamin K deficiency, hereditary telangiectasia.
 - Liver disease:* Hepatic cirrhosis (deficiency of factor II, VII, IX & X)
 - Kidney disease:* Chronic nephritis

Drugs: Excessive use of salicylates and other analgesics, antic

Mediastinal compression: Tumors of mediastinum (raised venou

Acute general infection: Influenza, measles, chickenpox, whoop
infectious mononucleosis, typhoid, pneumonia, malaria, dengue

Vicarious Menstruation

476. Investigation of choice for nasopharyngeal angiofibroma?

a) X-ray

b) MRI

c) Plane-CT

d) CT- contrast

Correct Answer - D

Ans. is'd'i.e., CT contrast

Ref: Dhingra Sth/e p. 262

- **CT scan of head with contrast enhancement is the investigation of choice for JNA.**

477. Which drug do not causes rhinitis?

a) ACE inhibitors

b) Glucocorticoid

c) Reserpine

d) Prazosin

Correct Answer - B

Ans. is 'b' i.e., Glucocorticoid.

Ref: Head and Neck Surgery - otolaryngology, Vol. I edited by Byron I. Bailey, Jonas T. Johnson, Shawn D. Newlands 4th ed p. 355

Important drugs causing rhinitis are :-

- Aspirin
- Hydralazine
- Beta - blockers
- Clonidine
- Reserpine
- Gabapentin
- Methyldopa
- ACE inhibitors
- Cocaine

478. In functional endoscopic sinus surgery (FESS) opening is made through?

a) Sphenoethmoidal recess

b) Osteomeatal complex

c) Inferior turbinate

d) Middle turbinate

Correct Answer - B

Ans. is 'b' i.e., Osteomeatal complex

[Ref HeaddNeckSurgery -otolnryryologlt,Vol. I

byByronl.Bailey,lonasT.lonson,

Shawnd. Newlands4h/ep. 459; Textbook Of Oral and

maxillofacial Surgery (full colour) l/eByNeelimaAniL p. 583

Functional endoscopic sinus surgery (FESS):

- **FESS is minimally invasive technique in which sinus air cells and sinus ostia are opened under direct vision.**
- **It is called functional because it aims to return the working of the sinus to normal.**
- **FESS is based on the hypothesis that the osteomeatal complex (maxillary sinus ostium, anterior & middle ethmoid ostia, frontal recess, infundibulum and middle meatal complex) is a key area in the pathogenesis of chronic sinus disease.**

479. Most feared complication of endoscopic sinus surgery is?

a) Retroorbital hematoma

b) CSF rhinorrhoea

c) Internal carotid injury

d) Nasolacrimal duct injury

Correct Answer - C

Ans. is 'c' i.e., Internal carotid injury

IRef: Bollinger 4th/e p. 319

- **Carotid artery injury during endonasal surgery is the most feared and catastrophic complication during sinus surgeries including FESS.**
- **Internal carotid artery injury is more frequent during skull base surgery, and risk factors include acromegaly,**
- **previous revision surgery, and prior radiotherapy and bromocriptine therapy.**
- **Injury to the ICA is the most devastating and, fortunately, the rarest complication.**
- **The ICA is vulnerable when surgery is performed in or around the posterior ethmoid air cells and the sphenoid sinus.**

480. Complications of paranasal sinusitis include all except?

a) Orbital cellulitis

b) Seizure

c) Nasal furuncles

d) Cavernous sinus thrombosis

Correct Answer - C

Ans. is 'c' i.e., Nasal furuncles

[Ref Dhingra 5th ed p. 211-215; Pediatric otolaryngologist 2^d ed p. 619]

Complications of sinusitis

- **Complications in properly managed sinusitis are uncommon.**
- **Local:- Mucocele / mucopyocele, mucous retention cyst, osteomyelitis.**
- **Orbital :-**
- **Periorbital cellulitis, orbital cellulitis, orbital abscess, subperiosteal abscess, cavernous sinus thrombosis, superior orbital fissure syndrome, orbital apex syndrome, edema of eye lids, retrobulbar neuritis with impaired vision.**
- **Intracranial :-**
- **Intracranial abscess (Epidural, subdural, parenchymal), meningitis, seizures, sepsis, focal neurological deficit.**
- **Descending infections:-**
- **Pharyngitis, laryngitis, tonsillitis, tracheobronchitis, otitis**

media.

Systemic :-

- **Toxic shock syndrome (very rare)**

Osteomyelitis:

- **More common in frontal sinusitis.**
- **Osteomyelitis of the frontal bone can cause subperiosteal abscess known as Poft Puft Tumor.**
- **Orbital cellulitis is particularly common in ethmoid sinusitis.**
- **Cavernous sinus thrombosis and intracranial complications are more common with sphenoid sinusitis.**

481. Antrochoanal polyp is associated most commonly with ?

a) Superior meatus

b) Inferior meatus

c) Middle meatus

d) Sphenoethmoidal recess

Correct Answer - C

ANTROCHOANAL POLYP

Antrochoanal polyp is non-cancerous growth arising from the mucous membrane of the maxillary sinus and reaches the opening of the sinus in the nasal cavity through the opening of maxillary sinus in the middle meatus.

It is single and unilateral, i.e. it occurs in one of the maxillary sinus. It arises from maxillary sinus and grows backward in the nose towards the choana and may reach the nasopharynx.

Generally occurs in young age group (children and young adults) and is more common in male. Exact etiology is not known, However sinus infection has been incriminated (in contrast to ethmoidal polyp, which is considered as allergic).

Clinical features of antrochoanal polyp

- Unilateral Nasal blockage (more on expiration than on inspiration)
- Obstruction may become bilateral when polyp grows into

nasopharynx and starts obstructing opposite choana.

- **Hyponasal voice**
- **Mucoid nasal discharge**
- **Conductive deafness due to eustachian tube dysfunction**
- **On examination, polyp may not be visible on anterior rhinoscopy as it grows posteriorly**
- **On posterior rhinoscopy - smooth, greyish white, spherical mass is seen in choana.**

Treatment of antrochoanal polyp

- **There is no medical treatment for antrochoanal polyp. The treatment of choice is complete surgical removal of polyp along with removal of lining of maxillary sinus to prevent the recurrence. Surgeries for antrochoanal polyp include :?**

1) Avulsion of a polyp

- **The stalk of the polyp is grasped and gently moved around to tease out the antral lining.**
- **Most of the time, avulsion fails to remove the polyp and antral lining completely.**

2) Intranasal polypectomy

- **It was the treatment of choice for all age groups prior to the advent of endoscopic sinus surgery and is still the treatment of choice in those setups where endoscopic surgery is not practised.**

3) Caldwell Luc operation

- **It is indicated if there is a recurrence and the age of the patient is more than 17 years.**
- **Now a days with FESS available - Caldwell luc operation is avoided.**

482. Rhinophyma is (a complication of -

a) Glandular form of acne rosacea

b) Form of acne vulgaris

c) Affects the scalp

d) A form of dermatofibroma

Correct Answer - A

A i.e. Glandular form of acne rosacea

483. Pure tone audiometry in presbycusis shows?

a) Normal study

b) Sensory neural hearing loss

c) Conductive hearing loss

d) Mixed hearing loss

Correct Answer - B

Ans. is 'b' i.e., Sensorineural hearing loss

[Ref; Dhingra Sh/e p. 41]

- **Presbycusis refers to sensorineural hearing loss in elderly.**
- **Characteristically in presbycusis involves bilateral high-frequency hearing loss associated with difficulty in speech discrimination and central auditory processing information.**

484. A 10 year boy presents with discharge and hearing disturbance in the left ear. On examination of the left ear, a central perforation is noted. Which of the following is the surgical management of choice in this patient?

a) Myringoplasty

b) Modified radical mastoidectomy

c) Radical mastoidectomy

d) Clearance and antibiotics

Correct Answer - A
Ans. A. Myringoplasty

485. COWS is related to ?

a) Romberg test

b) Caloric test

c) Fistula test

d) Hallpike positional test

Correct Answer - B

Ans. is'b'i.e., Caloric test

[Ref Dhingra 5h/e p. 48]

- **In bithermal caloric test**
- **Cold water provokes nystagmus towards the opposite ear, while warm water provokes nystagmus towards same ear (COWS:- Cold - opposite, Warm - same).**

486. Treatment of nasoalveolar cyst is?

a) Aspiration

b) Excision

c) Cautery

d) Laser

Correct Answer - B

Ans. is 'b' i.e., Excision

[Ref: Dherira 4/e p. 139; Shafer's Textbook of oral Pathology 4/e p. 66]

- **Nasoalveolar cyst (nasolabial cyst) is a developmental cyst arising outside the bone in the nasolabial below alae nasi.**
- **It presents as smooth bulge or swelling of upper lip lateral to midline. It is painless, except in secondary infection.**
- **Nasoalveolar cyst are excised by sublabial approach.**

487. Septal hematoma is treated with:

a) Incision/ drainage

b) Antibiotics

c) Nasal packing

d) Decongestants

Correct Answer - A

If a septal hematoma is present, the hematoma should be incised, drained, and packed to prevent recurrence.

Prompt treatment of septal hematomas should prevent complications such as ischemia of the septal cartilage, which can lead to permanent necrosis and a saddle-nose deformity.

488. True about septal hematoma is:

a) Occurs due to trauma

b) Can lead to saddle-nose deformity

c) Conservative treatment

d) a and b

Correct Answer - D

Ans. D a and b. Occurs due to trauma; Can lead to saddle nose deformity; and May lead to abscess formation

1. **Septal Hematoma** is collection of blood within the subperichondrial plane of septum.
2. **Etiology:** It results from nasal trauma, septal surgery or bleeding disorder.
3. **Clinical features:** Bilateral nasal obstruction is the commonest presenting symptom. It may be associated with frontal headache and a sense of pressure over the nasal bridge.
4. **Examination:** Reveals smooth round swelling of the septum in both the nasal fossae.
5. **On palpation:** The mass is soft and fluctuant.
6. **Treatment:** Small hematomas can be aspirated with a wide bore sterile needle. Large hematomas are incised and drained. Heaccumalation is prevented by intranasal packing.

Complications

1. **Septal hematoma**, if not drained, may organize into fibrous tissue leading to a permanently thickened septum.

- 2. If secondary infection supervenes, it results in septal abscess.**
- 3. Loss of structural support can cause depression of nasal dorsum leading to saddle nose deformity.**
- 4. Necrosis of the cartilage can cause perforation of the nasal septum -Dhingra 5th/ed, p 166**

489. Otosclerosis shows which type of tympanogram?

a) Type A

b) Type B

c) Type C

d) Type D

Correct Answer - A

Type A tympanograms have normal peak height and pressure. Two variations of the Type A tympanogram also are normal in pressure, but may be shallow (AS), reflecting otosclerosis or middle ear effusion, or peaked very high (AD), reflecting ossicular discontinuity or a monomeric eardrum

490. Middle ear effusion with intact eardrum gives rise to which type of tympanogram?

a) Type A

b) Type B

c) Type C

d) Type D

Correct Answer - B

Type B tympanogram is flat in appearance, indicating lack of compliance. The volume measurement that is simultaneously performed with tympanometry helps to differentiate between a flat tympanogram suggesting an intact eardrum with middle ear effusion and a perforated eardrum or patent ventilating tube.

491. Sinus which is not present at birth is?

a) Maxillary sinus

b) Ethmoid sinus

c) Frontal sinus

d) All of the above

Correct Answer - C

Ans. is'c'i.e., Frontal sinus

**[Ref Dhingra Sh/e p. 203; Hanison 75th/e p. 188; CPDT
15n/e p. 415]**

492. Most common paranasal sinus involved by Fibrous dysplasia is?

a) Maxillary sinus

b) Frontal sinus

c) Ethmoid sinus

d) Sphenoid sinus

Correct Answer - A

Ans. is 'a' i.e., Maxillary sinus

[Rel Ballmger's Otorhinolaryngology: Head and Neck Surg by James Byron Snow, Philip A. Wackym, John Jacob Ballenge centennial ed, p. 506]

- **Fibrous dysplasia most commonly involves maxillary sinus.**

493. Most common site of osteomas among the paranasal sinuses is ?

a) Maxillary

b) Frontal

c) Ethmoidal

d) Sphenoidal

Correct Answer - B

Ans. is'b'i.e., Frontal

[Ref: Dhingra 4h/e p. 195)

- **Osteoma are commonly seen in fronto-ethmoid region.**
- **The most common sites of osteomas are the frontal sinus followed by ethmoid and maxillary sinuses.**
- **They are rare in the sphenoid sinus and extremely rare on temporal and occipital squama.**

494. Antrum of Highmore is ?

a) Maxillary

b) Ethmoid

c) Sphenoid

d) Frontal

Correct Answer - A

Ans. is'a'i.e., Maxillary

[Ref: Dhingra 5n/e p. 201]

- **Maxillary sinus is also called Antrum of Highmore.**

495. In nasal endoscopy Eustachian tube is examined at?

a) 1st pass

b) 2nd pass

c) 3rd pass

d) 4th pass

Correct Answer - A

Ans. is'a'i.e., 1st pass

[Ref: Dhingra 427]

- **Nasal endoscopy is done in three passes :-**
- **First Pass: Examination of nasal cavity, nasopharynx, opening of eustachian tube, walls of nasopharynx, upper surface of soft palate and uvula, opening of eustachian tube of opposite side opening of nasolacrimal duct and inferior meatus.**

496. Lynch Howarth surgery is for:

a) Nasal septal perforation

b) Sinonasal tumours

c) Acoustic neuroma

d) Otosclerosis

Correct Answer - B

Frontal osteomas can be excised by Lynch Howarth surgery

497. Approach to Caldwell Luc operation is via?

a) Hard palate

b) Sublabial sulcus

c) Inferior meatus

d) Superior meatus

Correct Answer - B

Ans. is'b'i.e., Sublabial sulcus

[Rel Dhingra Sh/ep. 422)

- **Caldwell-Luc operation is a process of opening the maxillary antrum through canine fossa by sublabial approach and dealing with the pathology inside the antrum.**

498. Nerve injured in Caldwell Luc operation is?

a) Lingual nerve

b) Infra orbital nerve

c) Optic nerve

d) Facial nerve

Correct Answer - B

Ans. is 'b' i.e., Infra orbital nerve.

[Ref: Microendoscopic surgery p. 182]

Complications of Caldwell - Luc operation

- 1. Post - operative bleeding. This can be controlled by nasal pack**
- 2. Anaesthesia of the cheek due to stretching of infraorbital nerve. It may last for a few weeks or months.**
- 3. Anaesthesia Teeth**
- 4. Injury to nasolacrimal duct**
- 5. Sublabial fistula (oroantral fistula)**
- 6. Osteomyelitis of maxilla (rare)**

499. What type of tympanoplasty is myringostapediopexy?

a) Type 1

b) Type 2

c) Type 3

d) Type 4

Correct Answer - C

Ans. is 'c' i.e., Type 3

[Ref: Dhingra Sth/e p. 35; Tuli 14/e p. 491]

Types of Tympanoplasty

- **Wulstein classified tympanoplasty into five types :-**
 - Type I:**
 - **Defect is perforation of tympanic membrane which is repaired with a graft.**
 - **It is also called myringoplasty.**
 - Type II:**
 - **Defect is perforation of tympanic membrane with erosion of malleus.**
 - **Graft is placed on the incus or remnants of malleus.**
 - Type III:**
 - **Malleus and incus are absent.**
 - **Graft is placed directly on the stapes head.**
 - **It is also called myringostapediopexy or columella tympanoplasty,**

500. Which of following is not an absolute contraindication of tympanoplasty?

a) Malignant otitis externa

b) Tumor of middle ear

c) Poor eustachian tube function

d) Active ear discharge

Correct Answer - C

Ans. is 'c' i.e., Poor eustachian tube function

[Ref: Glasscock-Shambaugh Surgery of the Ear Aina I, Gulya & e p. 469]

Absolute contraindications for tympanoplasty

- **Active infection**
- **Malignant otitis externa**
- **Middle/external ear neoplasms**
- **Uncontrolled cholesteatoma**
- **Meningitis**
- **Poor Eustachian tube function is a relative contraindication.**

501. Electrode of cochlear implant is placed at ?

a) Horizontal semicircular canal

b) Scala media

c) Scala tympani

d) Scala vestibuli

Correct Answer - C

Ans. is 'c' i.e., Scala tympani

[Ref Essentials otolaryngology 2d/e p. 82]

Cochlear implants

- **Internal component : -**
- **It contains receiver/stimulator which is implanted under the skin and electrode which is implanted in the scala tympani of the cochlea a cochleostomy opening in the basal turn of cochlea.**
- **It may also be placed at other locations like promontory or round window but these sites has poorer performance.**

502. Mikulicz cell and Russell bodies are characterisitic of:

a) Rhinoscleroma

b) Rhinosporidiosis

c) Plasma cell disorder

d) Lethal midline granuloma

Correct Answer - A
Ans. A. Rhinoscleroma

503. Battle's sign is:
TN 11

a) Hemorrhage around eyes

b) Mastoid ecchymosis

c) Umbilical ecchymosis

d) Vaginal ecchymosis

Correct Answer - B
Ans. Mastoid ecchymosis

**504. Battle sign
indicates:
*NIMHANS 13***

a) Basilar fracture

b) Sutural fracture

c) Orbital fracture

d) Depressed fracture

**Correct Answer - A
Ans. Basilar fracture**

**505. Charcot Leyden crystal in stool in
seen in:**

a) Amoebic dysentery

b) bacillary dysentery

c) Shigella

d) bacillus cereus

**Correct Answer - A
Ans. a. Amoebic dysentery**

506. The function of stria vascularis is:

a) To produce perilymph

b) To absorb perilymph

c) To maintain electric milieu of endolymph

d) To maintain electric milieu of perilymph

Correct Answer - C

Scala vestibuli and scala tympani are filled with perilymph, whereas scala media/membranous cochlea is filled with endolymph.

507. Retroauricular incision is also known as?

a) Rosen's incision

b) Lempert's -I incision

c) Lempert's-II incision

d) Wilde's incision

Correct Answer - D

Ans. is'd'i.e., Wilde's incision

[Ref: Dhingra Sth/e p. 410]

- **Wilde's incision is used for postaural (retroauricular) approach.**
- **Lempert's incision is used for endaural approach.**
- **Rosen's incision is used for stapedectomy through endomeatal or transcanal approach,**

508. Weber ferguson approach is used for?

a) Mastoidectomy

b) Maxillectomy

c) Myringoplasty

d) Mandibulectomy

Correct Answer - B

WEBER FERGUSON APPROACH:

This approach involves an extension of the lateral rhinotomy incision that includes the splitting of upperlip. Indications: Exenteration of maxilla for total or subtotal maxillectomy (splitting the upper lip releases the facial flap for adequate lateral retraction and adds transoral exposure of palate and teeth)

509. Which of the following is seen in young's syndrome?

a) Azoospermia

b) Bronchiectasis

c) Infertility

d) All of the above

Correct Answer - D

Young's syndrome

Young's syndrome, also known as azoospermia sinopulmonary infections, sinusitis-infertility syndrome and Barry-Perkins-Young syndrome, is a rare condition that encompasses a combination of syndromes such as bronchiectasis, rhinosinusitis and reduced fertility.

510. Focal length of lens is 0.75 m, what will be its refractive power -

a) 0.75 D

b) 1.5 D

c) 1.25 D

d) 1.33 D

Correct Answer - D

Answer- D. 1.33 D

- **Refractive power (D)= $1/\text{focal length} = 1/.75 = 1.33 \text{ D}$**

511. Corneal thickness is measured by all except

a) Pachymetry

b) Optical coherence tomography

c) Confocal microscopy

d) Placido Keratoscopic disc

Correct Answer - D

Answer- D. Placido Keratoscopic disc

The following are the methods of measuring corneal thickness :-

- **Ultrasound**
- **Optical slit lamp pachymetry**
- **Scanning slit based Orbscan**
- **Optical low coherence reflectometry**
- **Amoebic dysentery (in stool)**
- **Allergic fungal sinusitis (AFS)**
- **Ultrasound biomicroscopy**
- **Specularmicroscopybased**
- **Optical Coherence Tomography (OCT)**
- **Confocal microscopy through focusing**
- **Laser Doppler interferometry**

512. Normal conjunctival flora is

a) E. coli

b) Pseudomonas

c) Coagulase negative staphylococci

d) Lactobacillus

Correct Answer - C

Answer- C. Coagulase negative staphylococci

Resident flora-

- **Coagulase negative staphylococci (most common)**
- **Micrococci**
- **Haemophilus**
- **Cornebacterium xerosis**

513. Which organism is considered as normal flora conjunctiva?

a) B.Proteus

b) Pseudomonas

c) E coli

d) Corynebacterium xerosis

Correct Answer - D

Answer- D. Corynebacterium xerosis

514. Iris bombe is seen in patients with ?

a) Segmental posterior synechiae

b) Annular posterior synechiae

c) Total posterior synechiae

d) None of the above

Correct Answer - B

Ans. is 'b' i.e., Annular posterior synechiae

Synechiae in iridocyclitis

The exudates poured out by the iris and ciliary body cover the surface of iris as thin film and spread into the pupillary area. This is called plastic iridocyclitis. Due to these exudates, iris sticks to the lens capsule and becomes fixed. Such firm adhesions of the pupillary margin to the lens is called posterior synechiae. Depending upon the portion of iris involved, posterior synechiae may be :-

- i. **Segmental posterior synechiae :-** Adhesion of pupillary margin to the lens at some points (segmental). Dilatation of pupil with segmental posterior synechiae causes the intervening portions of the circle of the pupil to dilate
Festooned appearance
- ii. **Ring synechiae (Annular posterior synechiae):-** The whole circle (360°) of the pupillary margin becomes tied down to the lens capsule. The aqueous is unable to pass into anterior chamber from the posterior chamber and collects behind the iris, which becomes bowed forwards like a sail, a condition which is called *iris bombe*. Ring synechiae is also called *seclusio pupillae* as there is occlusion of flow

of aqueous from posterior to anterior chamber. The *anterior chamber* from the front is seen to be *funnel-shaped*, deepest in the centre and shallowest at the periphery.

- iii. Total posterior synechiae : - Total posterior surface of iris become adherent to the lens capsule. This results in *deepening of anterior chamber*.
- When iris becomes adherent to cornea, it is called anterior synechiae.

515. Pin hole can reduce refractive error upto -

a) 1D

b) 3D

c) 5D

d) 10D

Correct Answer - B

Answer- B. 3D

- **The optimal aperture size of a pinhole is 1.2 mm, which may correct up to 3D of refractive error.**
- **A smaller pinhole actually hinders visual acuity because the smaller the aperture, the greater the diffraction**

516. Organism not invading intact cornea

a) Gonococci

b) *C. diphtheriae*

c) Meningococci

d) *Pseudomonas*

Correct Answer - D

Answer- D. *Pseudomonas*

- **The organisms which can penetrate intact corneal epithelium are *Neisseria gonorrhoea*, *Haemophilus aegyptus*, *Corynebacterium diphtheriae*, *Listeria species* and *Neisseria meningitidis*.**

517. Image formed by a prism is

- a) Virtual, erect and displaced towards its apex**
- b) Real, erect and displaced towards its base**
- c) Real, inverted and displaced towards its apex**
- d) Virtual, inverted and displaced towards its base**

Correct Answer - A

Ans. Virtual, erect and displaced towards its apex

518. Indocyanine Green Angiography (ICG Angiography) is most useful in detecting:

a) Occult Choroidal Neovascularization (Occult CNV)

b) Classic choroidal neovascularization (Classic CNV)

c) Angioid streaks with choroidal Neovascularization (CNV)

d) Polypoidal choroidal vasculopathy

Correct Answer - A

Ans. A i.e. Occult Choroidal Neovascularization (Occult CNV)

Diagnosi & Therapy 6th / 25 Yanoff 3rd / 542, 543] Major uses of ICG (Indocyanine Green) Angiography

- Detect Occult Choroidal Neovascular membranes (occult CNV) or their recurrence post treatment Q. 'The greatest utility of ICG angiography is in the identification and delineation of poorly defined or occult CNV'. - Suspected Retinal Pigment Epithelium Detachments (RPE detachment) Q

Angiography for Choroidal and Retinal Conditions

Criteria	Fluorescein Angiography (FA)	Indocyanine Green Angiography (ICG Angiography)
Primary Use	In the study of Retinal vasculature	In the study of Choroidal Vasculature
Principle	Fluorescein molecule is	ICG is a larger molecule

	<p>relatively small. Because of this fluorescein freely crosses the wall of small choroidal vessels and settles in the retinal vessels and some large choroidal vessels. This makes FA primarily a study of the retinal vasculature,</p>	<p>than fluorescein, and is typically protein bound. Because of this ICG molecules are retained in the choroidal circulation and make ICG ideal for detecting and evaluating choroidal abnormalities</p>
<p>Limitations & Strength</p>	<p>Fluorescein Angiography gives limited information on poorly defined lesions in choroidal circulation and Retinal Pigment Epithelium</p> <ul style="list-style-type: none"> - Because some Fluorescein molecules settle only in the large choroidal vessels, poorly defined lesions like occult CNV are not adequately evaluated by ICG angiography - Retinal pigment Epithelium (RPE) detachments are less readily observed on FA 	<p>ICG Angiography gives significant information on even poorly defined lesions in choroidal circulation and Retinal Pigment Epithelium</p> <ul style="list-style-type: none"> - 'The greatest utility of ICG angiography is in the identification and delineation of poorly defined or occult CNV'. - Retinal Pigment Epithelium (RPE) detachments are observed more readily on ICG angiography.

519.

Valve of Rosenmuller is present in which part of lacrimal system?

a) Puncta

b) Canaliculi

c) Lacrimal sac

d) Nasolacrimal duct

Correct Answer - B

Answer- B. Canaliculi

- **Valve of Rosenmuller is a small flap of mucosa in lacrimal canaliculus at its junction with lacrimal sac.**

520. Which antifungal is used intravitreally?

a) Fluconazole

b) amphotericin B

c) Itraconazole

d) Flucytosine

Correct Answer - B

Answer- B. amphotericin B

Antifungal drugs which are used intravitreally for fungal ophthalmitis are :-

- **Variconazole (more commonly used)**
- **Amphotericin B**

521. Which of the following drug is not used topically for open angle glaucoma?

a) Latanoprost

b) Brimonidin

c) Acetazolamide

d) Dorzolamide

Correct Answer - C

Ans. is 'c' i.e., Acetazolamide

Topical antiglaucoma drugs

Pilocarpine (0.25-0.5%) -> 4 times a day

Beta-blockers -

a Timolol (0.25-0.5%) eye drops + 1-2 times a day

a Timolol gel -+ Once a day

Betaxolol (0.5%) + twice daily

c Levobunolol (0.25-0.5%) -+ 1-2 times a day

Carteolol (1-2%) -+ 1-2 times a day

u Metipranolol (0.1-0.6%) -+ 1-2 times a day

Adrenergic

Adrenaline (1-2%) + twice daily

a Brimonidine (0.2%) -+ twice daily

Apraclonidine (0.5-1%) + twice daily

Carbonic-anhydrase inhibitors

a Dorzolamide (2%) -+ 2-3 times a day

Brinzolamide (1%) + 3 times a day

PG analogues

a LatanoProst (0.005%) + once a daY
a TravoProst (0.004%) -+ once a daY
BimatoProst (0.03%) -+ once a daY
Ans.

522. The Uveitis associated with vitiligo & auditory defects occurs in

a) Bechet's syndrome

b) Steven's Johnson syndrome

c) Vogt-Koyanagi syndrome

d) Ankylosing-spondylitis

Correct Answer - C

C i.e. Vogt-Koyanagi Syndrome

It is an idiopathic multisystem *autoimmune disorder against melanocytes causing inflammation of melanocyte containing tissue* (eg uvea, skin, meninges & ear) disorder which typically affects Hispanics, Japanese & pigmented individuals & associated with *HLA-DR4 & Dw 15*

523. Following are seen in vitamin A deficiency EXCEPT:
March 2004

a) Nightblindness

b) Follicular hyperkeratosis

c) Growth retardation

d) Polyneuritis

Correct Answer - D
Ans. D i.e. Polyneuritis

524. Complete unilateral congenital cataract should preferably be operated:

a) Within a few weeks of birth

b) At the age of 6 months

c) At the age of 2 years

d) At the age of 5 years

Correct Answer - A
Ans. Within a few weeks of birth

525. Most common cause of orbital cellulitis is?

a) B. Anthracis

b) H. influenza

c) S. aureus

d) Mucormycosis

Correct Answer - C

Answer- C. S. aureus

- **Streptococcus and staphylococcus are the most common organism causing orbital cellulitis.**

526. Orbital cellulitis most commonly occurs after infection of which of the following sinuses?

a) Maxillary sinus

b) Frontal sinus

c) Ethmoidal sinus

d) Sphenoidal sinus

Correct Answer - C

Bacterial orbital cellulitis is most commonly caused by the spread of infection in the ethmoid sinus into the orbit directly through the lamina papyracea or by travelling through the anterior and posterior ethmoid vessels.

527. Macular scar is formed in which of the following diseases:

a) Papillitis

b) Hypertension

c) Neuroretinitis

d) All of the above

Correct Answer - D
Ans. All of the above

528. What is the initial management of congenital Lens antigen are ?

a) Neoantigen

b) Sequestrated antigen

c) Altered antigen

d) Cross reacting

Correct Answer - B

Answer- B. Sequestrated antigen

- **Certain self antigens are present in the close system and never exposed to the immune system during fetal life.**
- **These are known as hidden antigen or sequestrated antigens. E.g. Sperm antigen, lens proteins being enclosed in capsule.**

529. Which of the following is not used topically for ophthalmic use ?

a) Hydrocortisone

b) Prednisolone

c) Methylprednisolone

d) Dexamethasone

Correct Answer - C

Answer- C. Methylprednisolone

Topical corticosteroids for ophthalmologic use are :-

- Hydrocortisone ointment
- Prednisolone acetate suspension
- Prednisolone sodium phosphate solution
- Dexamethasone sodium phosphate suspension
- Medrysone suspension
- Fluorometholone suspension
- Rimexalone suspension

530. Which of the following is not used as local injection for of ophthalmic use?

a) Triamcinolone

b) Prednisolone

c) Betamethasone

d) Dexamethasone

Correct Answer - B

Answer- B. Prednisolone

Periocular steroid injections are:-

- **Subconjunctival injection → Betamethasone or dexamethasone**
- **Subtenon or retrobulbar injection → Triamcinolone**

Intraocular steroid injections are :-

- **Injection → intravitreal triamcinolone**
- **Slow-release implants → fluocinolone or dexamethasone**

531. Optic nerve meningioma arises from ?

a) Piamater

b) Duramater

c) Astrocytes

d) Arachnoid

Correct Answer - D

Ans. is 'd' i.e., Arachnoid

Optic Nerve Meningioma :?

- *These are invasive tumours arising from the arachnoidal villi.*
- *Meningiomas invading the orbit are of two types :*
 - a) Primary intraorbital meningiomas*
- These are also known as 'optic nerve sheath meningiomas'.
- These produce early visual loss associated with limitation of ocular movements, optic disc oedema or atrophy, and a slowly progressive unilateral proptosis.
- b) Secondary orbital meningiomas*
- These intracranial meningiomas, secondarily invade the orbit, either arise from the sphenoid bone or involve it en route to the orbit.
- Orbital invasion may occur through: floor of anterior cranial fossa, superior orbital fissure and optic canal.
- Meningioma affecting the greater and lesser wings of sphenoid and taking origin in the region of pterion, is the

most common variety affecting the orbit secondarily.

532. Corneal epithelium is composed of:

a) Stratified keratinized epithelium

b) Stratified non-keratinized epithelium

c) Columnar epithelium

d) Pseudostratified epithelium

Correct Answer - B

Ans. Stratified non-keratinized epithelium

533. Which is the innermost layer of corneal epithelium ?

a) Keratinized squamous cells

b) Flattened squamous cells

c) Umbrella shaped cells

d) Columnar cells

Correct Answer - D

Ans. is 'd' i.e., Columnar cells [Ref Khurana 4⁵/e ch. 5]

- **Corneal epithelium is stratified squamous non-keratinized type and becomes continuous with epithelium of bulbor conjunctiva at the limbus.**
- **It consists of 5-6 layers of cells. The deepest (basal) layer is made up of columnar cells, next 2-3 layers of wing or umbrella cells and most superficial two layers are of flattened cells.**

534. Which HIV subtype is most common in India ?

a) A

b) B

c) C

d) M

Correct Answer - C

Answer- C. C

- **There are two types of HIV virus infecting man HIV-1 (most common) and HIV-2.**
- **There are three groups of HIV -I, group-DI (most common), group-O and group-N.**
- **'M-group' HIV-I is further subdivided into nine subtypes.**
- **Subtype-C is the predominant one in India**

535. What is the Median survival time in cardiac amyloidosis?

a) 1-3 months

b) 3-6 months

c) 6-12 months

d) 12-18 months

Correct Answer - C

Answer- C. 6-12 months

- **Once heart failure develops, the median survival is 6- 12 months in primary amyloidosis.**

536. Upper lobe bronchiectasis is seen in which disease?

a) Cystic fibrosis

b) Aspergilloma

c) HIV

d) Bronchogenic carcinoma

Correct Answer - A

Answer- A. Cystic fibrosis

- **Upper lobe bronchiectasis-**
- **Cystic fibrosis**
- **Tuberculosis**
- **Non tuberculous mycobacterial infections**

537. Multi organ failure is defined as failure of minimum how many organs ?

a) 2

b) 3

c) 4

d) 5

Correct Answer - A

Answer- A. 2

- **Multi organ failure (MOF) or multi organ failure syndrome (MOFS) or multi organ dysfunction syndrome (MODS) is defined as progressive dysfunction of two or more major organ systems in a critically ill patient that makes it impossible to maintain homeostasis without medical intervention and that is typically a complication of sepsis and is a major factor in predicting mortality.**

538. Which of the following is a quantitative defect in globin synthesis

a) Thalassemia

b) Sickle cell hemoglobinopathy

c) G6PD deficiency

d) Diamond-Black fan syndrome

Correct Answer - A

Ans. is 'a' i.e., Thalassemia

The thalassemia syndromes are a heterogeneous group of disorders caused by inherited mutations that decrease the synthesis of either the c-globin or p-globin chains that compose adult hemoglobin, HbA (c₂p₂), leading to anemia, tissue hypoxia, and red cell hemolysis related to the imbalance in globin chain synthesis.

539. A patient presents with Hb of 8 gm%, WBC count of 2000/mm³ and platelet count of 60000/mm³. What is your likely diagnosis ?

a) Thalassemia

b) Sickle cell anemia

c) Aplastic anemia

d) Anemia of chronic disease

Correct Answer - C

Answer- C. Aplastic anemia

- **The patient in question is having Pancytopenia (anemia, leukopenia and thrombocytopenia) → Feature of Aplastic anemia.**

540. On medical check up of a Punjabi student following findings were seen Hb of 9.9gm/dl, RBC count of 5.1 million, MCV of 62.5 fl and RDW of 13.51%. What is the most probable diagnosis ?

a) HbD

b) Thalassemia trait

c) Iron deficiency anemia

d) Anemia of chronic disease

Correct Answer - B

Answer- B. Thalassemia trait

Normal RDW with low MCV is seen in--

- 1. Anemia of chronic disease**
- 2. Heterozygous thalassemia (Thalassemia trait)**
- 3. Hemoglobin E trait.**

541. CO₂ level in kPa above which brain stem death is confirmed ?

a) 1

b) 9

c) 5

d) 6.5

Correct Answer - D

Answer- D. 6.5

- **At the end of a period of observation, typically several minutes, arterial Pco₂ should be at least > 6.6-8.0 kPa (50-60 mmHg) for the test to be valid.**
- **Apnea is confirmed if no respiratory effort has been observed in the presence of a sufficiently elevated Pco₂.**

542. Evans's syndrome refers to which of the following?

a) Autoimmune hemolytic anemia with autoimmune neutropenia

b) Autoimmune hemolytic anemia with autoimmune thrombocytopenia

c) Autoimmune hemolytic anemia with marked bone marrow suppression

d) Autoimmune hemolytic anemia with hypersplenism

Correct Answer - B

Ans. B. Autoimmune hemolytic anemia with autoimmune thrombocytopenia

- In some cases, Autoimmune hemolytic anemia (AIHA) can be associated with autoimmune thrombocytopenia (Evans's syndrome).

Reference:

- **Harrisons Principles of Internal Medicine, 18th Edition, Page 881**

543.

Which part of the brain is most affected in deep coma ?

a) Brain stem

b) Locus ceruleus

c) Frontal lobe

d) RAS

Correct Answer - D

Answer- D. RAS

- **The proximity of the RAS to midbrain structures that control pupillary function and eye movements permits clinical localisation of the cause of coma in many cases.**
- **preservation of pupillary light reactivity and of eye movements absolves the upper brainstem and indicates that widespread structural lesions or metabolic suppression of the cerebral hemispheres is responsible for coma.**

544. All are treatable diseases of spinal cord EXCEPT ?

a) ALS

b) Multiple sclerosis

c) Syringomyelia

d) A-V malformation

Correct Answer - A

Answer- A. ALS

- 1. Inflammatory : Multiple sclerosis, Neuromyelitis optica, transverse myelitis, sarcoidosis, SLE, vasculitis**
- 2. Developmental : Syringomyelia, meningomyelocele, tethered cord.**
- 3. Metabolic: Vitamin B12 deficiency (subacute combined degeneration), copper deficiency.**
- 4. Infections: CMV HSV, HTLV-I, HIV**

545. Anti-GD1 antibodies are seen in which variant of GBS ?

a) AIDP

b) AMAN

c) AMSAN

d) MFS

Correct Answer - B

Answer- B. AMAN

- **Acute motor axonal neuropathy (AMAN) → Anti-GD1a antibodies.**

546. Carvallo's sign representing a Diastolic Murmur that increases on inspiration is seen in -

a) Tricuspid Stenosis

b) Tricuspid Regurgitation

c) Mitral Stenosis

d) Aortic Regurgitation

Correct Answer - A

Answer- A. Tricuspid Stenosis

- **Carvallo's meneuever is also associated with tricuspid stenosis.**
- **In tricuspid stenosis diastolic murmur is accentuated during inspiration whereas in T.R. pan systolic murmur is accentuated during inspiration.**

547. Auenbrugger's sign is seen in

a) Pericardial Effusion

b) Constrictive pericarditis

c) Aortic Regurgitation

d) Mitral Stenosis

Correct Answer - A

Answer- A. Pericardial Effusion

Friedreich's sign

- **Pitres's sign**
- **Auenbrugger's sign**
- **Sansom's sign**
- **Greene's sign**
- **Ewart's sign**
- **Ebstein's sign**
- **Rotch's sign**
- **Moschcowit's sign**
- **Ewart's second sign**
- **Dressle's sign**
- **Bamberger's sign**

548. Ewart's sign is seen in:

a) Acute pulmonary embolism

b) Pericardial effusion

c) Pneumomediastinum

d) Chronic constrictive pericarditis

Correct Answer - B

In pericardial effusion the base of the left lung may be compressed by pericardial fluid, producing a patch of dullness and increased fremitus (and egophony) beneath the angle of the left scapula. This is Ewart's sign.

Ref: Harrisons principles of internal medicine, 18th edition, Page: 1971.

549. Pulsus paradoxus is seen in (select correct option)

a) Cardiac tamponade

b) Constrictive pericarditis

c) HOCM

d) a and b both

Correct Answer - D

Answer is A (Cardiac tamponade); B (Constrictive pericarditis)

Pulsus paradoxus is characteristic of cardiac tamponade but also seen in constrictive pericarditis and acute asthma

Pulsus alternans.

550. Pulsus alternans is seen in:
March 2009

a) MS with MR

b) AS with AR

c) Left ventricular failure

d) Digitalis poisoning

Correct Answer - C

Ans. C: Left ventricular failure

Pulsus alternans is a physical finding characterized by a regular alternation of the force of the arterial pulse. It almost invariably indicates the presence of severe left ventricular systolic dysfunction.

551. Pulsus bisferiens occurs in:
September 2005

a) HOCM

b) AR

c) AS and AR

d) All of the above

Correct Answer - D

Ans. D: All of the above

Pulsus bisferiens/ bisferious pulse / biphasic pulse

Bisferious means striking twice, traditionally pulsus

bisferiens is discovered when aortic insufficiency exists in association with aortic stenosis, but may also be found in isolated but severe aortic insufficiency, and hypertrophic obstructive cardiomyopathy.

552. Pulsus parvus et tardus is seen in ?

a) Severe AS

b) Severe MS

c) Severe AR

d) Severe MR

Correct Answer - A

Answer- A. Severe AS

- **Pulsus tardus or pulsus parvus-et-tardus is a slow rising pulse with delayed systolic peak. It is seen in severe AS.**

553. Pulmonary Apoplexy is seen in -

a) Mitral Stenosis

b) Mitral Regurgitation

c) Aortic Stenosis

d) Aortic regurgitation

Correct Answer - A

Answer- A. Mitral Stenosis

- **Pulmonary apoplexy refers to sudden severe haemoptysis that may be seen in patients with Mitral Stenosis from rupture of a bronchial vein.**

554. Vaccine against capsulated organism given how many weeks before splenectomy ?

a) 1 week

b) 2 week

c) 4 week

d) 6 week

Correct Answer - B

Answer- B. 2 week

- **Pneumococcal polysaccharide (PPSV) vaccination; If elective splenectomy is planned, vaccinate at least 2 weeks before surgery.**

555. Not associated with diabetes mellitus

a) Cushing syndrome

b) Acromegaly

c) Hypothyroidism

d) Pheochromocytoma

Correct Answer - C
Ans. is 'c' i.e., Hypothyroidism

556. Most serious form of Rickettsial disease -

a) Scrub typhus

b) Q-fever

c) Trench fever

d) Rocky mountain spotted fever

Correct Answer - D

Ans. is 'd' i.e., Rocky mountain spotted fever [Ref: With text]

- **"Among the Rickettsial diseases, Rocky mountain spotted fever is the most common and the most serious"**
- **The microbial challenge "R rickettsii (causative agent of RMSF) is the most virulent Rickettsia" — Clinical microbiology**

557. Triple H therapy for subarachnoid hemorrhage consists of all except -

a) Hypothermia

b) Hypertension

c) hemodilution

d) HyPervolemia

Correct Answer - A

Answer- A. Hypothermia

The three'Es used In the treatment are : -

- **Hnertension**
- **Hypemolemia**
- **Hemodilution**

558. Pulseless electric activity due to ?

a) Ionic abnormality

b) Alkalosis

c) Hyponatremia

d) All of the above

Correct Answer - A

Answer- A. Ionic abnormality

- **Pulseless electrical activity or PEA (also known as by the older term electromechanical dissociation) refers to a clinical diagnosis of cardiac arrest in which heart rhythm is observed on the electrocardiogram that should be producing a pulse but is not.**

559. Farmer's Lung is caused due to exposure to:

a) Bacillus Subtilis

b) Thermoactinomyces Sacchari

c) Aspergillus Fumigatus

d) Penicillium Nalgiovens

Correct Answer - B

Answer is B (Thermoactinomyces Sacchari)

The classic presentation of farmer's lung results from inhalational exposure to Thermophilic Actinomycetes species.

Thermophilic actinomycetes species include Saccharopolyspora rectivirgula (formerly Micropolyspora faeni), Thermoactinomyces vulgaris, Thermoactinomyces viridis, and Thermoactinomyces sacchari

Farmer's lung (Hypersensitivity pneumonitis, extrinsic allergic alveolitis)

- **It is an immunologically mediated inflammatory disease of the lung involving the terminal airways.**
- **The classic presentation of farmer's lung results from inhalational exposure to Thermophilic *Actinomycetes* species.**
- **Thermophilic actinomycetes species include *Saccharopolyspora rectivirgula* (formerly *Micropolyspora .faeni*), *Thermoactinomyces vulgaris*, *Thermoactinomyces viridis*, and *Thermoactinomyces sacchari*, among others.**

Farmer's Lung may occasionally result from exposure to various Aspergillus species also

- **Exposure to large quantities of contaminated moldy hay is the most common source of inhalational exposure for farmers who develop farmer's lung It is often a disease of dairy farmers who handle contaminated hay during the winter months.**
- **These organisms flourish in areas of high humidity and prefer temperatures of 40-60°C.**
- **Most cases of farmer's lung occur in cold, damp climates in late winter and early spring when farmers use stored hay to feed their livestock**
- **Patient typically presents 4-8 hours after exposure with fever, chills, malaise, cough, and dyspnea without wheezing**

560. Neuromuscular disorder is related to which type of lung cancer ?

a) Adeno carcinoma

b) Squamous cell carcinoma

c) Small cell carcinoma

d) Bronchoavelolar carcinoma

Correct Answer - B

Answer- B. Squamous cell carcinoma

- **Myasthenia- Bronchogenic Ca**
- **Cerebellar degeneration- Small cell Ca of lung**
- **Lambert- Eaton Syndrome- Small cell Ca of lung**
- **Peripheral neuropathy- Small cell Ca of lung**
- **Dermatomyositis/ Polymyositis- Small cell Ca of lung**
- **Stiffman Syndrome- GIT cancers, Breast cancer, Ovarian cancer**

561. Which enzyme is defective in Refsums disease?

a) Phytanic acid oxidase

b) Succinate thiokinase

c) Malonate dehydrogenase

d) Thiophorase

Correct Answer - A
A. i.e. Phytanic acid oxidase

562. A 60 year old lady underwent abdominal surgery and on the 4th post - operative day she was diagnosed to have Systemic Inflammatory Response Syndrome (SIRS). What are the features of SIRS ?

a) Normal body temperature and normal respiratory rate

b) WBC > 12 x 10⁹/L or < 4 x 10⁹/L

c) Respiratory rate > 24 breaths/minute and heart rate > 90 beats/minute

d) b and c

Correct Answer - D

Ans. Two options are correct i.e. ' b & c'

Two or more of the following conditions define SIRS :

- (1) fever (oral temperature >38°C) or hypothermia (<36°C);**
- (2) tachypnea (>24 breaths/min);**
- (3) tachycardia (heart rate >90 beats/min);**
- (4) leukocytosis (>12,000/ micro L), leukopenia (<4,000/micro L), or >10% bands**

563. Flat T wave and prolonged QT interval on ECG as shown in picture is due to ?

a) Hyperkalemia

b) Hypokalemia

c) Hypercalcemia

d) Hypocalcaemia

Correct Answer - D

Answer- D. Hypocalcaemia

- **Main ECG change is prolonged QT interval mainly due to prolonged ST narrow QRS complex reduced PR interval**
- **T wave flattening and inversion prominent U-wave**

564. Mid-diastolic Murmur with presystolic accentuation is typically seen in:

a) Mitral stenosis

b) Mitral Regurgitation

c) Aortic stenosis

d) MVP

Correct Answer - A

Answer is A (Mitral Stenosis)

Mid diastolic murmur with with presystolic accentuation is typically seen in mitral stenosis.

Mitral stenosis is associated with a low-pitched rumbling diastolic murmur heard best at the apex. The murmur typically peaks during mid-diastole and again immediately before the first heart sound (Pre-systolic accentuation)'

- Evidence Based physical diagnosis (Elsevier) 2012/397

Mitral stenosis is associated with a low-pitched rumbling diastolic murmur heard best at the apex with the patient in lateral decubitus position. In patients with sinus rhythm, the murmur often reappears or becomes louder during atrial systole (presystolic accentuation)' - Harrison

565. In contrast to iron deficiency anemia in anemia of chronic disease, TIBC -

a) Decreases

b) Increases

c) Normal

d) None

Correct Answer - A

Ans. is 'a' i.e., Decreases

Parameter	Iron deficiency	Chronic disease
• Serum iron	Decreased	Decreased
• Serum ferritin	Decreased	Decreased
o TIBC	Increased	Decreased
o % Saturation	Normal to increased	Decreased
o Bone marrow iron receptor	Normal to increased	Decreased
o Serum transferrin receptor	Decreased	Increased
• Pattern of anemia	Microcytosis precedes hypochromia	Hypochromia precedes hypochromia

566. Side effects of hyperbaric oxygen therapy are all except

a) Absorption atelectasis

b) Increased pulmonary compliance

c) Decreased vital capacity

d) Endothelial damage

Correct Answer - B

Answer- B. Increased pulmonary compliance

- 1. CNS toxicity (Bert effect) :- The acute oxygen toxicity has predominant CNS effect.**
- 2. Pulmonary toxicity (Smith effect) :- The chronic oxygen toxicity has predominant pulmonary effect.**
- 3. Ocular effects :- Retrolental fibroplasia (Retinopathy of prematurity).**

567. Massive splenomegaly is seen in all of the following conditions, Except:

a) Hairy cell leukemia

b) Myelofibrosis

c) CML

d) Hepatic vein obstruction

Correct Answer - D

Hepatic vein obstruction is associated with splenomegaly but not massive splenomegaly.

Causes of massive splenomegaly:

- Chronic myeloid leukemia
- Lymphomas
- Hairy cell leukemia
- Myelofibrosis with myeloid
- Metaplasia
- Polycythemia vera
- Gaucher's disease
- Chronic lymphocytic leukemia
- Sarcoidosis
- Autoimmune hemolytic anemia
- Diffuse splenic hemangiomas

Ref: Henry P.H., Longo D.L. (2012). Chapter 59. Enlargement of Lymph Nodes and Spleen. In D.L. Longo, A.S. Fauci, D.L. Kasper, S.L. Hauser, J.L. Jameson, J. Loscalzo (Eds), Harrison's Principles of Internal Medicine, 18e.

568. Drug used in both type 1 and type 2 Diabetes mellitus is?

a) Metformin

b) Pramlintide

c) Coleselvam

d) Panconeline

Correct Answer - B

Answer- B. Pramlintide

- **This is a synthetic amylin analogue (Amylin is a polypeptide produced by pancreatic p-cells which reduces glucagon secretion from alpha-cells and delays gastric emptying).**
- **It is given by subcutaneous route and is used in both Type I and Type 2 DM.**

569. Tuberculin positive means?

- a) Immunodeficient patient**
- b) Resistance to tuberculin protein**
- c) Patient is infected with mycobacterium**
- d) Patient is suffering from disease**

Correct Answer - C

Patient is infected with mycobacterium REF: Park 20' edition page 164

A positive test (reaction of 10 mm or more to 1 TU PPD) indicates that the person is infected with M. tuberculosis; it does not prove that the person is suffering from the disease

570. Which of the following is the most appropriate drug used for chelation therapy in beta thalassemia major?

a) Oral desferoxamine

b) Oral deferiprone

c) Intramuscular EDTA

d) Oral Succimerq

Correct Answer - B

Deferiprone is a recently introduced orally active iron chelator which has simplified the treatment of transfusion siderosis in thalassemia patients. Oral desferrioxamine is poorly absorbed when given orally so not preferred in the oral route.

Oral Deferiprone is a less effective alternative to injected desferrioxamine. Deferiprone has also been indicated for acute Iron poisoning & for iron load in liver cirrhosis.

Ref: Essentials of Medical Pharmacology By KD Tripathi, 5th Edition, Pages 813-5

571. The following is not true of platelet transfusion

a) Useful in ITP

b) Used in D.I.C.

c) Effective for 9-10 days

d) Effect decrease with repeated usage

Correct Answer - C

Answer- C. Effective for 9-10 days

- **The shelf life of platelets stored at room temperatures is five days because of the bacterial infection risk that increases in relationship to the storage duration.**
- **Platelet transfusion is indicated in DIC and ITP.**

572. All of the following are morphological neurological complication of measles except

a) Transverse myelitis

b) Encephalitis

c) Optic neuritis

d) SSPE

Correct Answer - C

Answer- C. Optic neuritis

Complications of measles are :-

- **Respiratory: Otitis media (most common complication) , pneumonia (Giant cell or Hecht,s pneumonia), bronchitis, laryngitis, croup.**
- **CNS : These are most serious and include encephalitis, transverse myelitis and a rare complication SSPE (Subacute sclerosing**
- **panencephalitis).**
- **Gastrointestinal- Gastroenteritis, hepatitis, appendicitis, diarrhea, ileocolitis, mesenteric adenitis.**

573. Which is not a feature of cerebral malaria ?

a) Focal neurologic deficit

b) Retinal haemorrhages

c) Extensor plantar reflex

d) Absent abdominal reflex

Correct Answer - A

Answer- A. Focal neurologic deficit

- **Focal neurological signs are unusual. Deep tendon reflexes are normal, increased or decreased.**
- **Corneal reflex is preserved, except in deep coma. Abdominal reflexes are invariably absent. Cremasteric reflex is often preserved.**
- **Extensor plantar response occurs in half of the patients.**

574. What is true regarding byssinosis

a) Dyspnea resolves after cessation of exposure

b) Similar to chronic bronchitis and emphysema

c) Present as mediastinal fibro

d) Eosinophils are prominent in BAL

Correct Answer - A

Answer- A. Dyspnea resolves after cessation of exposure

- **Symptoms of Byssinosis may improve on cessation of further exposure. Therefore symptoms are worse at workplace and improve away from workplace.**
- **Symptoms are similar to asthma (not emphysema or chronic bronchitis) --> Typical 'monday chest tightness'.**
- **Byssinosis does not usually cause mediastinal fibrosis'**

575. A young female has the following lab values: Hemoglobin=9.8 gm%, MCV=70 serum iron=60, serum ferritin=-100, the diagnosis is

a) Thalassemia trait

b) Chronic iron deficiency anemia

c) Megaloblastic anemia

d) Anaemia of chronic infection

Correct Answer - D

Answer- D. Anaemia of chronic infection

- **These features suggest anemia of chronic disease or infection.**

576. All are useful in management of severe clostridium difficile-infection, except

a) Vancomycin oral

b) Neomycin enema

c) IV metronidazole

d) Tigecycline

Correct Answer - B

Answer- B. Neomycin enema

- **Oral voncomycin plus intravenous metronidazole is the treatment of choice for patients with severe und complicated clostridium dilificle infection (CDI)**

577. Clubbing is least common in:

a) Squamous cell carcinoma

b) Adenocarcinoma

c) Small cell carcinoma of lung

d) Mesothelioma

Correct Answer - C

Answer is C (Small cell Ca of Lung):

`Skeletal connective tissue syndromes including clubbing is usually seen in non-small cell carcinomas 'H-1 6th Clubbing is thus least common with small cell carcinoma of lung

578. D-Dimer values may be increased in all of the following Except:

a) Myocardial infarction

b) Pneumonia

c) Anticoagulant therapy

d) Pregnancy

Correct Answer - C

Answer is C (Anticoagulant therapy):

D-Dimer values are falsely decreased in patients receiving anticoagulant therapy –Clinical Hematology Myocardial infarction, pneumonia and pregnancy are all established causes for false positive (Elevated) D-Dimer values

Elevated

True Positive

Thromboembolic Diseases

- PE
- DVT
- DIC
- Others

False Positive

- MI
- Pneumonia
 - Cancer
 - Postoperative state
- Sepsis
 - Heart failure
- Pregnancy

579. Primary hyperaldosteronism doesn't lead to ?

a) Hyperkalemia

b) Hypernatremia

c) Hydrogen depletion and metabolic alkalosis

d) Hypertension

Correct Answer - A

Ans. is 'a' i.e., Hyperkalemia

Clinical manifestations of hyperaldosteronism

- **Excess activation of the mineralocorticoid receptor leads to potassium depletion and increased sodium retention, with the latter causing an expansion of extracellular and plasma volume.**
- **Increased ENaC activity also results in hydrogen depletion that can cause metabolic alkalosis.**
- **Aldosterone also has direct effects on the vascular system, where it increases cardiac remodeling and decreases compliance. Aldosterone excess may cause direct damage to the myocardium and the kidney glomeruli, in addition to secondary damage due to systemic hypertension.**
- **Hypokalemia can be exacerbated by thiazide drug treatment, which leads to increased delivery of sodium to the distal renal tubule, thereby driving potassium excretion.**
- **Severe hypokalemia can be associated with muscle**

weakness, overt proximal myopathy, or even hypokalemic paralysis. Severe alkalosis contributes to muscle cramps and, in severe cases, can cause tetany.

580. Insane paresis is associated with -

a) Syphilis

b) Leishmaniasis

c) Yellow fever

d) Nesseria meningitis

Correct Answer - A

Ans. is 'a' i.e., Syphilis

General paresis of insane

- **Is a form of neurosyphilis, peaks in incidence 10 to 20 years after untreated Treponemapalliduminfection.**
- **It often starts with subtle cognitive and emotional changes, such as problems with concentration and irritability, and, if untreated, can lead to memory loss, confabulation, anomia, apraxia, or pseudobulbar palsy. The disease may mimic any psychiatric disorder, as well.**
- **One-half of the patients with neurosyphilis manifest dementia, of whom one-fourth of patients have prominent psychiatric manifestations, such as depression, paranoia, psychosis, or mania.**
- **A worsening of symptoms during the first 24 hours after the initiation of antibiotic treatment has been termed the Jarisch-Herxheimer reaction. With disease progression, there is loss of muscle tone, fine motor control, seizures, spasticity, and, eventually, paralysis and death.**

581. Sniff test is used in ?

a) Facial nerve palsy

b) Vestibular nerve palsy

c) Phrenic nerve palsy

d) Oculomotor nerve palsy

Correct Answer - C

Sniff test

- **The fluoroscopic'sniff test, also known as diaphragm fluoroscopy, is a quick and easy real time fluoroscopic assessment of diaphragmatic motor function (excursion).**
- **It is used most often to confirm absence of muscular contraction of the diaphragm during expiration in patients with phrenic nerve palsy or breathing difficulties following stroke.**
- **Chest radiograph demonstrating a newly elevated hemidiaphragm often precedes a sniff test.**

582. Which of these is not true about cardio esophageal sphincter?

a) An anatomic sphincter can be found

b) Located at 40 cm from incisors

c) It has a pinch cock like mechanism

d) It has a flap valve mechanism

Correct Answer - A

Answer- A. An anatomic sphincter can be found

- **LES is a physiological sphincter with high pressure zone, but is difficult to identify anatomically.**
- **It is behind 7th costal cartilage at the level of T11**

583. Most common type of shock in surgical practice is?

a) Cardiogenic shock

b) Hypovolemic shock

c) Neurogenic shock

d) Septic shock

Correct Answer - B

Answer- B. Hypovolemic shock

584. The pre-malignant condition with the highest probability of progression to malignancy is

a) Dysplasia

b) Hyperplasia

c) Leuoplakia

d) Erythroplakia

Correct Answer - D

Ans. is 'd' i.e., Erythroplakia

Incidence of malignant change in erythroplakia is 17- fold higher than in leukoplakia.

585. In a RTA patient sustained trauma to left side of chest and abdomen. Fluid in the peritoneum & sign of hypotension was found on physical examination. Most probable diagnosis is?

a) Splenic injury

b) Diaphragmatic injury

c) Rib fracture

d) Renal injury

Correct Answer - A

Answer- A. Splenic injury

- **Tachycardia and hypotension after blunt trauma to left abdomen should alert the clinician to the potential for splenic injury**

586. Bisgaard regimen is used in treatment of?

a) Trophic ulcer

b) Malignant ulcer

c) Ischaemic ulcer

d) Varicose ulcer

Correct Answer - D

Answer- D. Varicose ulcer

Bisgaard's regimen of varicose ulcer :

- **Education :** Patient education of ulcer dressing and care, ulcer care by regular cleaning by with povidone iodine, H₂O₂, Dressing with EUSOL.
- **Elevation:** Limb elevation to reduce edema, increase venous drainage, to promote ulcer healing.
- **Exercise :** Massage, active and passive exercises
- **Elastic compression :** Pressure bandage (crepe bandage), four layered high pressure compression bandage.
- **Evaluation**

**587. Risk factor for malignant melanoma
all the following are risk factors for
malignant melanoma except**

a) Giant congenital nevi

b) Family history melanoma

c) Exposure to UV light

d) HPV infection

Correct Answer - D

Answer- D. HPV infection

risk factor for malignant melanoma is exposure to (UV radiation)

- 1. Dysplastic nevus (DN) syndrome; 5-10% risk of forming superficial spreading melanoma.**
- 2. Xeroderma pigmentosum**
- 3. History of nonmelanoma skin cancer (NMSC)**
- 4. Family history of melanoma (high risk)**
- 5. Congenital nevi**

588. Unilateral cleft lip is repaired at what age?

a) 1-3 months

b) 3-6 months

c) 6-9 months

d) 9-12 months

Correct Answer - B
Answer= B. 3-6 months

589. Percentage of burn in children is best assessed by?

a) Rule of 9

b) Rule of palm = 1%

c) Lund and Browder chart

d) Wallace rule

Correct Answer - C

Answer- C. Lund and Browder chart

Area of body	In children (Lund and Browder chart)			In Adults (Rule of nine: Wallace's formula)
	1-4 years	5-9 years	10-14 years	Adult
Head and Neck	19	15	13	9
Trunk (front)	16	16	16	18 (Front of chest + abdomen)
Trunk back	16	16	16	18 (Back of chest + abdomen)
Upper limbs	19	19	19	18 (Right+left upper limbs)
Lower limbs	30	34	35	36 (Front + back of right and left lower limbs)
Genitals	0	0	1	1

590. Wallace rule is better known as?

a) Rule of 10% in pheochromocytoma

b) Rule of 90% in pheochromocytoma

c) Rule of 9 in burn assessment

d) None

Correct Answer - C

Ans. C. Rule of 9 in burn assessment

Area of body	In children (Lund and Browder chart)			In Adults (Rule of nine: Wallace's formula)
	1-4 years	5-9 years	10-14 years	
Head and Neck	19	15	13	9
Trunk (front)	16	16	16	18 (Front of chest + abdomen)
Trunk back	16	16	16	18 (Back of chest + abdomen)
Upper limbs	19	19	19	18 (Right+left upper limbs)
Lower limbs	30	34	35	36 (Front + back of right and left lower limbs)
Genitals	0	0	1	1

591. Bipedicle flap is used for reconstruction of?

a) Nose

b) Fingertip

c) Eyelid

d) Breast

Correct Answer - C

Answer- C. Eyelid

- **Bipedicled flap is a bucket handle flap supplied by both the ends. It is used for lower eyelid repair and rarely anywhere else.**

592. Reconstruction of tip of nose after excision of basal cell carcinoma is done by?

a) Bipedicled flap

b) Bilobed flap

c) Full thickness skin graft

d) Split skin graft

Correct Answer - B

Answer- B. Bilobed flap

- **Bilobed flap is used to cover a convex defect as on tip of nose.**
- **The bilobed flap is widely used for small nasal defects because it allows one to distribute tensions further from the primary defect, thus controlling the degree of tension along the alar margin.**

593. All are seen in cystitis except

a) Fever

b) Hematuria

c) Dysuria

d) Nocturia

Correct Answer - A

Answer- A. Fever

- **Patients with acute cystitis present with irritative voiding symptoms such as dysuria, frequency, Nocturia and urgency.**
- **Low back and suprapubic pain, hematuria, and cloudy/foul smelling urine are also common symptoms.**
- **Fever and systemic symptoms are rare.**

594. Most common carcinoma is associated with IVC metastasis

a) Small cell carcinoma lung

b) Gastric adenocarcinoma

c) Renal cell carcinoma

d) Papillary carcinoma thyroid

Correct Answer - C

Ans is 'c' i.e. Renal cell carcinoma [Ref Current Therapy in Vascular and Endovascular Surgery p. 948]

- **The one of the striking characteristics of RCC is to invade renal vein and metastasize into IVC.**
Through blood
- **Renal cell carcinoma**
- **Pheochromocytoma**
- **Adrenocortical carcinoma**
- **Uterine sarcomas (Lemmyomatosis, endometrial stromal cell sarcoma)**
- **Germ cell tumors (embryonal, teratocarcinoma)**
Direct invasion
- **Retroperitoneal soft tissue tumors (hposarcoma, leiomyosarcoma, malignant fibrous histiosarcoma)**
- **Hepatic tumors (cholangiocarcinoma, HCC)**
- **Pancreaticoduodenal tumor.**

595. MC site of primary carcinoma in a case of Krukenberg tumour is:
March 2004

a) Gall bladder

b) Stomach

c) Breast

d) Lung

Correct Answer - B
Ans. B i.e. Stomach

596. Diarrhoea with ulcer responding to PPI is seen in :

a) MEN 1 syndrome

b) Zollinger ellison syndrome

c) H.pylori infection

d) VIPoma

Correct Answer - B

Answer- B. Zollinger ellison syndrome

- **ZE syndrome presents with secretory diarrhoe and gastric ulcer which responds well to PPI.**
- **MEN I is also associated with ZE syndrome, but their are other major components also like parathyroid hyperplasia and prolactinoma.**
- **H. pylori infection, does not usually cause diarrhea and VIPoma does not usually cause peptic ulcer.**

597. Alvarado score is used for

a) Acute cholecystitis

b) Acute appendicitis

c) Acute apncreatitis

d) Acute epididymitis

Correct Answer - B

Answer- B. Acute appendicitis

Scoring system for Acute Appendicitis: Alvarado Score:

- **The diagnosis of appendicitis is based primarily on clinical history and physical examination assisted by blood counts. A number of clinical and laboratory based scoring systems have been devised to assist diagnosis. The most widely used scoring system is Alvarado score.**

598. Gold standard investigation for chronic pancreatitis?

a) MRI

b) ERCP

c) Pancreatic function tests

d) Fecal fat estimation

Correct Answer - B

Answer- B. ERCP

- **ERCP has been considered the most sensitive radiologic test for the diagnosis of chronic pancreatitis, with specific ERCP findings that are highly correlative with the degree or stage of chronic disease.**

599. Most common electrolyte imbalance that causes Paralytic ileus is?

a) Hyponatremia

b) Hypernatremia

c) Hypokalemia

d) Hyperkalemia

Correct Answer - C

Answer- C. Hypokalemia

- **Causes of Paralytic ileus**
- **Infection**
- **Electrolyte abnormalities**
- **Medication**
- **Retroperitoneal hemorrhage**
- **Myocardial infarction**
- **Mesenteric ischemia**
- **Hypothyroidism**
- **Ureteric colic**

600. First to recover from post-operative ileus is?

a) Small intestine

b) Stomach

c) Colon

d) None

Correct Answer - A

Answer- A. Small intestine

- **First recover → Small intestine**
- **Last recover → Colon (largeintestine)**

601. Investigation of choice for esophageal rupture is?

a) Dynamic MRI

b) Rigid esophagoscopy

c) Barium contrast swallow

d) Water soluble low molecular weight contrast swallow

Correct Answer - D

Answer-D. Water soluble low molecular weight contrast swallow

- **Non-ionic water soluble contrast medium (instead of barium) is warranted when there is any risk of esophageal leak.**

602. Dumping syndrome occurs least with ?

a) Selective vagotomy

b) Truncal vagotomy

c) Highly selective vagotomy

d) Syndrome occurs with all of the above commonly

Correct Answer - C

Ans. is 'c' i.e., Highly selective vagotomy

It is least seen with highly selective vagotomy because the motility of the stomach is least affected in highly selective vagotomy and is most common with gastrectomy.

603. Normal intra abdominal pressure is?

a) 5 mm Hg

b) 10 mm Hg

c) 15 mm Hg

d) 20 mm Hg

Correct Answer - A

Answer- A. 5 mm Hg

- **Normal intrabdominal pressure is arround 5 mm Hg (0.2-16.2 mm Hg).**

604. Most common type of cancer gall bladder in a patient with gallstone-

a) Adenocarcinoma

b) Squamous carcinoma

c) Sarcoma

d) None

Correct Answer - A
Ans. is 'a' i.e., Adenocarcinoma

605. All are features seen in Chronic Pancreatitis except ?

a) Chronic persistent pain

b) Diarrhoea, Steatorrhoea

c) Calcification

d) Paralytic ileus

Correct Answer - D
Ans. is 'd' i.e., Paralytic ileus

606. Fleischner sign on barium study is seen in?

a) Ileocecal TB

b) Crohn's disease

c) Small bowel carcinoid

d) Typhoid

Correct Answer - A

Answer- A. Ileocecal TB

- **Early involvement of the ileocaecal region manifesting as spasm and edema of the ileocecal valve.**
- **Thickening of the lips of the ileocecal valve and/or wide gaping of the valve with narrowing of the terminal ileum ('Fleishner" or 'inverted umbrella sign') are characteristic.**

607. Monro kellie doctrine used in?

a) Aortic injury

b) Cervical injury

c) Head injury

d) Pelvic injury

Correct Answer - C

Answer- C. Head injury

- **Monro Kellie doctrine states that the cranial vault is a rigid structure, and therefore, the total volume of the contents determines ICP.**
- **The three normal contents of the cranial vault are brain tissue, blood, and CSF.**

608. Best prognostic indicator for head injured patients:
AIIMS 10

a) GCS

b) CT findings

c) Age of the patient

d) History

Correct Answer - A
Ans. GCS

609. Triple H therapy for subarachnoid hemorrhage consists of all except -

a) Hypertension

b) Hypervolaemia

c) Hemodilution

d) Hypothermia

Correct Answer - D

Answer- D. Hypothermia

Triple H therapy of subarachnoid hemorrhage used to ameliorate cerebral perfusion, consists of :

- 1. Hypervolaemia**
- 2. Hypertension**
- 3. Haemodilution**

610. First clinical feature of cerebello-pontine angle tumor is ?

a) Reduced lacrimation

b) Loss of corneal reflex

c) Hoarseness of voice

d) Exaggerated tendon reflexes

Correct Answer - B

Answer- B. Loss of corneal reflex

- **Absent corneal reflex is the earliest sign of cerebellopontine (CP) angle tumors like acoustic neuroma.**

611. Percentage of cold thyroid nodules likely to be malignant:

a) 20%

b) 30%

c) 40%

d) 72%

Correct Answer - A
Ans. 20%

612. Which is the investigation of choice to differentiate between benign and malignant thyroid nodule?

a) USG

b) FNAC

c) Scintigraphy

d) Biopsy

Correct Answer - B

Answer- B. FNAC

- **FNAC is the investigation of choice to differentiate between benign or malignant solitary thyroid nodules.**

613. Radiation exposure can leads to which thyroid carcinoma?

a) Lymphoma

b) Papillary carcinoma

c) Medullary carcinoma

d) Follicular carinoma

Correct Answer - C

Answer- C. Medullary carcinoma

- **Thyroid carcinomas arising after radiation or in thyroglossal cyst are papillary type.**

614. Most probable malignancy that develops in a case of long-standing goiter is -

a) Follicular Ca

b) Anaplastic Ca

c) Papillary Ca

d) Medullary Ca

Correct Answer - A

Ans is 'a' i.e., Follicular carcinoma

"An increased incidence of cancer (usually follicular) has been reported from endemic areas. Dominant or rapidly growing nodules in longstanding goiters should always be subjected to aspiration cytology." - Bailey & Love

- **About Follicular Carcinoma (FTC)**
- **FTC are second most common thyroid malignancies, more common in iodine-deficient areas.**
- **More common in women (Female : Male ratio of 3:1)**
- **Mean age of presentation is later than papillary Ca (— 50 yrs)**
- **Multiple foci are rarely seen and lymph node involvement is much less common than in papillary carcinoma.**
- **Blood borne metastasis is common with spread to bone, lungs, liver and elsewhere.**
- **In less than 1% of cases, follicular cancers may be *hyperfunctioning (warm nodule on scintiscan)*, leading to symptom of thyrotoxicosis.**

- **Histopathology**

Follicular carcinomas are usually solitary lesions, the majority of which are encapsulated.

Microscopically most follicular carcinomas are composed of fairly uniform cells forming small follicles containing colloid (quite like normal thyroid). In other cases follicular differentiation may be less apparent, and there may be nests or sheets of cells without colloid.

the nuclei lack the typical features of papillary Ca.

615. Complications of total thyroidectomy include all except:

a) Hoarseness

b) Airway obstruction

c) Hemorrhage

d) Hypercalcaemia

Correct Answer - D

Ans. is 'd ' i.e. hypercalcemia

- ***Hypocalcemia***, not hypercalcemia is a complication of thyroidectomy.
- **Complications of thyroidectomy include**
 - 1) *Haemorrhage***

Is usually due to slipping of ligature on the superior thyroid art.
Hematomas may cause *airway compromise and must be evacuated immediately.*
Hematomas may occur immediately or later on. An immediate bleed occurs after or shortly before extubation when the pt. lightens from anaesthesia and may begin to cough, causing a vessel to open. Delayed hemorrhage may develop slowly and therefore may not be recognized at first.
 - 2) *Respiratory obstruction***

Causes includes
Tension hematoma.
Laryngeal oedema (by anesthetic intubation)
Bilateral recurrent laryngeal nerve paralysis.

3) *Recurrent laryngeal nerve paralysis*

- May be unilateral or bilateral, transient or permanent.
- Bilateral causes respiratory obstruction – Dyspnea, stridor.

4) *Injury to other nerves*

- External branches of superior laryngeal nerve
- Cervical sympathetic trunk - may cause Homer's syndrome.

5) *Parathyroid insufficiency.*

- Is due to removal of the parathyroid glands or infarction due to vascular injury.

Vascular injury is more important.

- Cases usually present *2-5 days after operation* with symptoms of hypocalcemia (*circumoral and fingertip numbness and tingling tetany, carpopedal spasm and laryngeal stridor.*

Treatment with oral calcium and vitamin D supplements.

IV calcium gluconate may be required in severe cases.

6) *Thyroid insufficiency.*

7) *Thyrotoxic crisis*

- *Occurs if the thyrotoxic patient has been inadequately prepared for thyroidectomy.*

616.

A nerve injured in radical neck dissection leads to loss of sensation in medial side of the arm, nerve injured is?

a) Long thoracic nerve

b) Thoracodorsal nerve

c) Dorsal scapular nerve

d) Medial cutaneous nerve of arm

Correct Answer - D

Answer- D. Medial cutaneous nerve of arm

- **The medial cutaneous nerve of the arm is the smallest and most medial branch of the brachial plexus, and arises from the medial cord.**
- **It pierces the deep fascia at the midpoint of the upper arm to supply the skin over the medial aspect of the distal third of the upper arm.**

617. Epulis is -

a) Benign

b) Malignant

c) Reactive process

d) Precancerous

Correct Answer - B

Answer- B. Malignant

Epulis represents a family of benign tumors of gingiva.

The classification include :

- 1. Granulomatous epulis, pyogenic granuloma**
- 2. Giant cell epulis (myeloid epulis)**
- 3. Fibrous epulis (most common)**

618. The best treatment for cystic hygroma is -

a) Surgical excision

b) Radiotherapy

c) Sclerotherapy

d) Chemotherapy

Correct Answer - A

Ans. is 'a' i.e., Surgical Excision

Definitive treatment is complete excision of the cyst at an early age.

**619. Flail chest means fracture
of:
*PGI 12***

a) Two ribs on same side

b) Two ribs on opposite side

c) Four ribs on two sides

d) All

**Correct Answer - C
Ans. C. Four ribs on two sides**

620. Most common age group affected in thoracic outlet obstruction syndrome?

a) 10-25 years

b) 25-45 years

c) 45-65 years

d) > 65 years

Correct Answer - B

Answer- B. 25-45 years

- **It constitutes compression of subclavian vessels and/or brachial plexus between scalene muscles and first rib.**
- **Important causes are cervical rib and fibrous band from C₇ spinous process to first rib.**
- **Most common age group involved is 25-50 years females are more affected.**

621. Nipple inversion occurs due to involvement of?

a) Cooper's ligament

b) Subareolar duct

c) Parenchyma of breast

d) Subdermal lymphatics

Correct Answer - B

Answer- B. Subareolar duct

- **Inversion of nipple is due to fibrosis in and around subareolar duct.**

622. TNM staging of breast carcinoma with positive bilateral supraclavicular lymph nodes is?

a) N3a

b) N3b

c) N3c

d) M1

Correct Answer - D
Answer- D. M1

623. Van Nuys grading system is used for?

a) LCIS

b) DCIS

c) Inflammatory carcinoma breast

d) Medullary carcinoma breast

Correct Answer - B

Answer- B. DCIS

- **Van Nuys prognostic index is widely used to classify ductal carcinoma in situ (DCIS) into dissimilar risk categories that may be treated accordingly.**

624. True about screening mammography

-

a) Indicated in 50-70 years of age

b) Mortality reduced by 30%

c) Radiation due to mammography can cause carcinoma

d) All

Correct Answer - D

Ans. is (a) Indicated in 50-70yrs of age; (b) Mortality reduced by 30%; (c) Radiation due to mammography can cause carcinoma

- **Mammography**
is X-ray imaging of breasts to detect tumors or other abnormalities. it is of 2 types -
 - i) **Screening mammography** is used to detect breast changes in women who have no signs or symptoms of any breast abnormality. The goal is to detect cancer before any clinical signs are noticeable. This usually requires at least 2 mammograms from different angles of each breast - a) the cranio-caudal (cc) view and b) the mediolateral-oblique (MLO) view.
 - ii **Diagnostic mammography** is used to investigate suspicious breast changes such as a breast lump, breast pain, an unusual skin change, nipple discharge. It is also used to evaluate abnormal findings on a screening mammogram.
- **Age for mammography**

Current guidelines from the U.S. Department of Health and Human Services (HHS), the American Cancer Society (ACS), the American Medical Association (AMA) and the American College of Radiology (ACR) recommend -screening mammography every year for women, beginning at age 40.

The American Cancer Society recommends these screening guidelines

Yearly mammograms are recommended starting at age 40 and continuing for as long as a woman is in good health

- Clinical breast exam (CBE) about every 3 years for women in their 20s and 30s and every year for women 40 and over
- Breast self-examination starting in their 20s..
- The American Cancer Society recommends that those with high risk for breast cancer -- because of their family history, a genetic tendency, or certain other factors -- be screened with MRI in addition to mammograms.
- But many societies are against screening mammography in *women aged below 50 years*. there is also controversy regarding the *frequency of mammogram* and utility of mammogram *above 70 yrs of age*.
- But one thing is certain - its utility in 50-70 yrs age group, about which there is no controversy. Randomized clinical trials have demonstrated a 30% reduction in breast cancer mortality in women 50-69 years who are screened annually or biennially with mammograms. The data on women under age 50 are less clear likewise data are sparse regarding efficacy of screening mammograms in women older than age 69" - American College of Preventive Medicine

CSDT 13/e writes- "The beneficial effect of screening in women aged 50-69 years is undisputed and has been confirmed by all clinical trials."

- Radiation risk (Risk of carcinoma)
no doubt that ionizing radiation (X rays) can itself cause breast cancer, but the dose used in mammography is so small (less than 0.2 rads or 0.2 cGy per exposure utilizing

film-screen mammographic technique) that it is hardly of any significance.

"There has never been any direct evidence that the doses required for modern mammography have any effect on the breast particularly among women over the age of 40 in whom screening is beneficial. There is no scientific evidence that any one ever has or ever will develop breast cancer as the result of a mammogram." - Kopan's Breast imaging

But still there is a theoretical risk of breast Ca (although very small) associated with mammography.

- *About option 'd' & 'e'*

CSDT (13/e p285) writes?

"Mammography is the most reliable means of detecting breast cancer before a mass can be palpated. Slowly growing cancers can be identified by mammography at least 2 years before reaching a size detectable by palpation.

MRI and ultrasound may be useful screening modalities in women who are at high risk for breast cancer but not for the general population. The sensitivity of MRI is much higher than mammography; however, the specificity is significantly lower, which results in multiple unnecessary biopsies. The increased sensitivity despite decreased specificity may be considered a reasonable trade-off for those at increased risk for developing breast cancer but not for normal-risk population."

- *But remember that generally mammography is not helpful in young women (< 35 years). This is because of dense breast. In young women, ultrasound may be more useful than mammography.*

About ultrasound Bailey and Love (25/e p828) writes?

"Ultrasound is particularly useful in young women with dense breasts in whom mammograms are difficult to interpret, and in distinguishing cysts from solid lesions. It can also be used to localize palpable areas of breast pathology. It is not useful as screening tool and remains

operator dependent. Increasingly, ultrasound of the axillary tissue is performed when a cancer is diagnosed and guided percutaneous biopsy of any suspicious glands may be performed."

About MR Bailey and Love (25/e p829) writes?

Magnetic resonance imaging (MRI) is of increasing interest to breast surgeons in a number of settings:

- It can be useful to distinguish scar from recurrence in women who have had previous breast conservation therapy

for cancer (although it is not accurate within 9 months of radiotherapy because of abnormal enhancement).

It is the best imaging modality for the breasts of women with implants.

It has proven to be useful as a screening tool in a high-risk women (because of family history).

- It is less useful than ultrasound in the management of the axilla in both primary breast cancer and recurrent disease.

Also remember

- for maximum yield in screening programs, mammography is combined with physical examination since about 35-50% of early breast cancers can be discovered only by mammography and another 40% can be detected only by palpation.

The two standard mammographic projections are:

A mediolateral oblique (MLO) view and a craniocaudal (CC) view.

The MLO is taken with the X-ray beam directed from superomedial to inferolateral, usually at an angle of 30-60°.

The MLO projection is the only projection in which all the breast tissue can be demonstrated on a single image.

In CC view, the X-ray beam travels from superior to inferior. Positioning is achieved by pulling the breast up and forward away from the chest wall, with compression applied from above.



625. Which one of the following is the most sensitive and specific screening test to detect breast cancer?

a) Regular X-ray

b) Self breast examination

c) Mammography

d) Regular biopsy

Correct Answer - C

Ans. is 'c' i.e., Mammography

- **Mammography is most sensitive and specific in detecting small tumors that are sometimes missed on palpation.**

Screening Test (s)	Disease screened
Papanicolaou (Pap) smear test	Cervical cancer
Breast self examination (BSE)	Breast cancer
Mammography	Breast cancer
Bimanual oral examination	Oral cancer
ELISA, RAPID, SIMPLE	HIV (National AIDS Control Programme)
Urine for Sugar, Random blood sugar	Diabetes mellitus
AFP (alpha-feto-protein)	Developmental anomalies in fetus
Digital rectal examination (DRE)	Prostate cancer
Prostate specific antigen	

Prostate specific antigen
(PSA)

Prostate cancer

Fecal occult blood test

Colorectal cancer

626. All are true about Paget disease EXCEPT:

a) 97% associated with underlying Invasive Carcinoma of breast

b) 50% are hormone receptor positive

c) Wedge or punch is biopsy taken from nipple for diagnosis

d) Underlying tumor lying within 2cm for the nipple

Correct Answer - B

50% are hormone receptor positive REF:

<http://emedicine.medscape.com/article/1101235-overview#showall>

- **Nearly 98% of mammary Paget disease cases are associated with an underlying carcinoma, either in situ (intraductal, 10%) or infiltrating cancer (90%)**
- **Scrape cytology has been suggested as a noninvasive and reliable, rapid diagnostic screening method for mammary Paget disease.**
- **Punch, wedge, or excisional biopsy of the lesional skin of the nipple-areola complex to include the dermal and subcutaneous tissue for detailed microscopic examination provides an adequate sample for the accurate diagnosis of mammary Paget disease**
- **In cases of positive estrogen and progesterone receptors in an underlying breast carcinoma, the overlying Paget disease is negative for these receptors.**



627. Most common site for Adenoid cystic carcinoma is ?

a) Minor Salivary glands

b) Parotid gland

c) Submandibular gland

d) Sublingual gland

Correct Answer - A

Ans. is 'a' i.e., Minor salivary glands

628. Which of the following is not a cause of acute pancreatitis ?

a) Hypercalcemia

b) Thrombotic thrombocytopenic purpura

c) Cystic fibrosis

d) Magnetic resonance cholangiopancreatography (MRCP)

Correct Answer - D

Ans. is 'd' i.e., Magnetic resonance cholangiopancreatography (MRCP)

Causes of Acute Pancreatitis

Common causes

- Gallstones (including microlithiasis) - most common
- Hypertriglyceridemia
- Endoscopic retrograde cholangiopancreatography (ERCP), especially after biliary manometry. Trauma (especially blunt abdominal trauma)
- Postoperative (abdominal and nonabdominal operation)
- Drugs (L-asparaginase, thiazide diuretics, frusomide, estrogens, azathioprine, 6-mercaptopurine, methyldopa, sulfonamide, tetracyclin, valproic acid, anti-HIV medications)
- Sphincter of Oddi dysfunction

Uncommon causes

- Vascular causes and vasculitis (ischemic-hypoperfusion states after cardiac surgery)

- **Connective tissue disorders and thrombotic thrombocytopenic purpura (TTP)**
- **Cancer of the pancreas Hypercalcemia**
- **Periampullary diverticulum Pancreas divisum**
- **Hereditary pancreatitis Cystic fibrosis**
- **Renal failure**

629. Normal weight of infant at 1 year from birth is:
September 2007

a) Doubled

b) Tripled

c) Quadrupled

d) Variable increase

Correct Answer - B

Ans. B: Tripled

Normal Weight Increases:

- 1. Weight doubles by 6 months of age**
- 2. Weight triples by 1 year of age**
- 3. Weight quadruples by 2 years of age**
- 4. Annual increase (Ages 2-9): 2.0 kg/year**

**630. Height of a newborn doubles at:
*September 2005, March 2010***

a) 1 year

b) 2 year

c) 3 year

d) 4 year

Correct Answer - D

Ans. D: 4 year

In general, length in normal term infants increases about 30% by 5 months and > 50% by 12 months; infants grow 25 cm during the 1st yr; and height at 4 yr is about double birth length.

631. At what age do first permanent teeth appear ?

a) 5 years

b) 6 years

c) 7 years

d) 8 years

Correct Answer - B

Ans. is 'b' i.e., 6 years

o First primary (milk) tooth erupts at 6 months.

o First secondary (permanent) tooth appear at 6 year of age.

632. Child draws triangle at what age ?

a) 3 years

b) 5 years

c) 6 years

d) 7 years

Correct Answer - B

Ans. is 'b' i.e., 5 years

Age

12-24 months

2 years

3 years

4 years

draws a rectangle

5 years *Draws a triangle*

Milestone

Tries to scribble spontaneously

Draws a vertical or horizontal line

Draws a circle

Draws a cross (plus sign) and

633. Vocabulary of 1.5 year old child is -

a) 1-10 words

b) 10-20 words

c) 20-30 words

d) 30-40 words

Correct Answer - B
Ans. is 'b' i.e., 10-20 words

634. An 18 month old infant can do A/E -

a) Climbing upstairs

**b) Can follows mother's activities
Can turn 2-3 pages at a time**

c) Can say 2-3 words

d) Can make tower of 8 cubes

Correct Answer - A

Ans. is 'a' i.e., Climbing upstairs

A child walks up and downstairs with one step at a time by 2 years.

o A child can mimic the action carried out by the mother at home (mimicry) by 1 year of age.

o A child can turn 2 or 3 pages of a book at time by 13 months.

o An 18 months old child can use 10 words with meaning.

o An 18 months old child can build a tower of 4 cubes (not 8 cubes).

635. Red flag sign in child development if not attained ?

a) Vocalization at 2 months

b) Walking at 12 months

c) Single word at 12 months

d) Standing alone at 16 month

Correct Answer - D

Ans. is 'd' i.e., Standing alone at 16 month

Red flag sign of child development

Milestone	Age
No visual fixation or following by	2 months
No vocalisation	6 months
Not sitting without support	9-10 months
Not standing alone	16 months
Not walking alone	18 months
Not single word	18 months
Lack of imaginative play	3 years

636. Which of the following X-ray should be advised for age determination between 1-13 years of age -

a) Shoulder

b) Wrist

c) Elbow

d) Iliac bones

Correct Answer - B

Ans is 'b' i.e., Wrist

Radiograph used to determine skeletal age

o 3-9 months --> Shoulder

o 1-13 years —> Hand and wrist

o 12-14 years —> Elbow and hip

637. Most common cause of sore throat in children is ?

a) RSV

b) Rhinovirus

c) Influenza virus

d) Allergic

Correct Answer - B

Ans. is 'b' i.e., Rhinovirus

- **Rhinovirus is the most common cause of sore throat in children'**
- **Streptococcus pyogenes is the most common bacterial cause of sore throat/Pharyngitis.**

638. Supernumerary teeth most common site ?

a) Maxillary incisor and canine

b) Mandibular incisor and canine

c) Maxillary central incisor

d) Mandibular central incisor

Correct Answer - C

Ans. is 'c' i.e., Maxillary central incisor

- **The dental lamina produces more than the normal number of buds, supernumerary teeth occur, most often in the area between the maxillary central incisors.**
- **Because they tend to disrupt the position and eruption of the adjacent normal teeth, their identification by radiographic examination is important**

639. Microcephaly, blue eyes, fair skin, and mental retardation in a 4 year old girl with a positive ferric chloride test is indicative of which of the following?

a) Phenylketonuria (PKU)

b) Homocystinuria

c) Tyrosinosis

d) Alkaptonuria

Correct Answer - A

A child presenting with microcephaly blue eyes, fair skin, mental retardation and a positive ferric chloride test typically describes a patient with Phenylketonuria.

Ref: Textbook of Biochemistry for Medical Students, By D. M. Vasudevan.M.D, DM Vasudevan, Page 208; Harrison's – 16th Edition, Page 2333

640. Lactose intolerance is due to ?

a) Deficiency of Galactokinase

b) Deficiency of Uridyl transferase

c) Deficiency of Lactase

d) Deficiency of Enteropeptidase

Correct Answer - C

Ans. is 'c' i.e., Deficiency of Lactase

Lactose intolerance

- **It occurs due to deficiency of lactase, the most important member of β -galactosidase enzymatic class.**
- **Lactase hydrolyses lactose into glucose and galactose in the small intestine.**
- **Lactose is present in milk.**
- **Therefore, deficiency of lactase, (β -galactosidase) results in intolerance to milk and other dairy products.**
- **Clinical features are bloating, diarrhea, failure to thrive, abdominal distension and abdominal cramp.**

641. A known patient with renal stone disease developed pathological fractures along with abdominal pain and certain psychiatric symptoms. He should be investigated for ?

a) Polycystic kidney

b) Renal tubular acidosis

c) Hyperparathyroidism

d) Paget's disease of bone

Correct Answer - C

Ans. is 'c' i.e., Hyperparathyroidism

642. All are false except one in case of hypertrophic pyloric stenosis -

a) Symptomatic within one week

b) Lump is always clinically palpable

c) T/t of choice is Finney's pyloroplasty

d) Ultrasonography is diagnostic test

Correct Answer - D

Ans is 'd' ie Ultrasonography is diagnostic test

Hypertrophic Pyloric Stenosis (HPS)

- The musculature of the pylorus and adjacent antrum is grossly hypertrophied, the hypertrophy being maximum in the pylorus itself.
- It occurs in approximately 3 in 1000 live birth and is the *most common surgical cause of vomiting in infancy*.
- M > F (4 : 1)*
- Characteristically the first born male child is affected.
- The condition is *most commonly seen at 4 wks after birth* ranging from the 3rd wk to on rare occasion, the 7th. However, 20% of infants are symptomatic from birth, and most are symptomatic within the first 2 months after birth.
- Non-bilious vomiting, becoming increasingly projectile, occurs over several days to weeks. Eventually the infant will develop a nearly complete obstruction by the second to fourth week of life and will not be able to hold down even clear liquids. This invariably proceeds to severe dehydration if not t/t.

- These infants develop a metabolic alkalosis with severe depletion of potassium and chloride ions.
- *" The diagnosis of pyloric stenosis usually can be made on physical examination by palpation of the typical 'olive' in the right upper quadrant and the presence of visible gastric waves on the abdomen.*
- *When the olive cannot be palpated, ultrasound in experienced hands will diagnose the condition accurately in 95 percent of pts." - Schwartz.*
- Treatment
 - Pyloric stenosis is *never a surgical emergency* although dehydration and electrolyte abnormalities may present a medical emergency
 - Fluid resuscitation and correction of electrolyte abnormalities and metabolic alkalosis is essential before surgery.
 - Surgery : *Fredet-Ramstedt pyloromyotomy.* (In it the pyloric mass is split without cutting the mucosa)
- Also know
- *Administration of erythromycin in early infancy has been linked to the subsequent development of HPS.*
- *Jaundice may be seen in HPS, although cause is not clear.*

643. MCHC criteria to diagnose iron deficiency anemia -

a) < 32

b) < 34

c) < 28

d) < 30

Correct Answer - B

Answer- B. < 34

Age	Hemoglobin (gm/dl)	MCHC (%)
Children 6 months - 6 Years	11	34
Children 6 Years - 14 Years	12	34
Adult male	13	34
Adult female	34	
Pregnant woman	11	34

644. A child was treated for H. Influenza meningitis for 6 month. Most important investigation to be done before discharging the patient is:

a) MRI

b) Brainstem evoked auditory response

c) Growth screening test

d) Psychotherapy

Correct Answer - B

H. Influenza Type Meningitis

It is frequent in children between the ages of 3 and 12 months. Residual auditory deficit is a common complication. - *Ghai 6th/ed*

Since, residual auditory deficit is a common complication of H. influenza meningitis, audiological test to detect the deficit should be performed before discharging any patient suffering from H. influenza meningitis.

In children best test to detect hearing loss is brainstem evoked auditory response.

645. In Pediatric advanced life support, intraosseous access for drug/fluid administration is recommended for pediatric age of-

a) < 1 year age

b) < 5 years age

c) < 6 years age

d) Any age

Correct Answer - C

Ans. is 'c' i.e., < 6yrs of age

"If I.V. route is unsuccessful, intraosseous access in the proximal tibia of an uninjured leg is the preferred alternative for children younger than 6 yrs. In children older than 6 yrs a percutaneous femoral venous line should be attempted.

646. Treatment of Rolandic epilepsy is

a) Phenytoin

b) Lamotrigine

c) Carbamazepine

d) ACTH

Correct Answer - C

Ans. is 'c' i.e., Carbamazepine

- **Rolandic epilepsy or Benign epilepsy of childhood with centrotemporal spike is one of the epilepsy syndromes of childhood with a good prognosis.**
- **It occurs between 2-14 years of age (peak at 9- 10 years).**
- **Clinical features include unilateral tonic clonic contraction of lower face, oropharyngeal symptoms, lack of neuropathologic lesion and presence of Rolandic foci on EEG.**
- **BPEC occurs during sleep in 75% of patients.**
- **Carbamazepine is the preferred drug for treatment**

647. Increased oxygen delivery during prematurity causes all except –

a) Vasoconstriction

b) Vasodilation

c) Vaso-obliteration

d) Neovascularisation

Correct Answer - B

Ans. is 'b' i.e., Vasodilation

- **Oxygen causes tissue injury through the formation of reactive oxygen intermediates and peroxidation of membrane lipids.**
- **Premature infants, who have severely reduced antioxidant defences, are particularly sensitive to the toxic effects of oxygen.**

Supplemental oxygen in premature infants contributes to the development of chronic lung disease characterized by:

- **Dysregulated inflammation**
- **Altered expression of proteases and growth factors.**
- **Fibrosis**
- **Asymmetric aeration**
- **Respiratory insufficiency**
- **Vasoconstriction in the retina**
- **Vaso-obliteration**

648. True about Henoch Scholien purpura:

a) Abdominal pain

b) Can lead to end stage renal disease

c) Palpable purpura

d) All of the above

Correct Answer - D

Answer is D (All of the above):

Abdominal pain, Intussusception, Palpable Purpura and progression to end stage renal disease may all be seen in H.S. purpura

Most common HSP affects 4 -5 years of age group

Abdominal pain is a characteristic manifestation of HSP (60-70% of patients)

Abdominal Manifestations

- Colicky Abdominal pain
- Nausea, Vomiting, diarrhea or constipation
- Gastrointestinal bleeding
- Intussusception

Intussusception may occur in H.S. purpura

Intussusception is rare in adults but may occur in children

HSP associated intussusception is usually ileoileal in contrast to idiopathic Intussusception which is ileocolic

Palpable purpura is the most common manifestation of HSP.

Palpable purpura is seen in virtually all pediatric patients

HSP can lead to End stage Renal Disease

Although HSP is usually associated with mild

Glomerulonephritis, patients may progress to end stage renal disease. *'Renal disease is more frequent and tends to be persistant in adults who have a higher risk than children of developing End-stage Renal Disease'* – CRDT 2nd/318

649. All are features of Kawasaki disease, except

a) Peak incidence at age > 5 years

b) Aneurysm of coronary artery

c) Enlarged lymphnodes

d) Fever

Correct Answer - A

Answer is A (Peak incidence at age > 5 years) :

80% cases occur prior to age of 5 years with peak incidence < 2 years.

- **Kawasaki disease is an Acute febrile multisystem disease of children.**
- **Prolonged fever over 5 days that is unresponsive to antibiotics is seen.**
- **Although the disease is generally benign & self limiting it is associated c coronary artery aneurysm in 25% of cases**
- **Non suppurative cervical lymphadenopathy is characteristic**

650. Tuberculosis in children true is?

a) Commonly sputum negative

b) Incidence < 5% of all TB casesv

c) Clinically child does not show sign of florid TB.

d) All of above

Correct Answer - D

Ans. is 'd' i.e., All of above

Pediatric tuberculosis :

- **Prevalence of childhood TB is between 10 to 20% of all TB cases and between 5 to 15% overall**
- **Frequency of childhood Tb depends upon: number of infectious cases, closeness of contacts, age of child when exposed, age structure of population**
- **Children are rarely sputum positive and non infective to others**
- **Childhood tuberculosis is rarely contagious because; of low bacterial load and rarity of cavitating disease**
- **Childhood TB is common due to failure of control in adult and risk of infection to child depends upon extent of exposure to droplet nuclei.**
- **An infant with sputum positive mother has high chances of developing TB**
- **Risk of developing disease is greatest shortly after infection**
- **Children below 5 years of age are most susceptible because of poor immune system, therefore most common in age group of 1-4 years**

- **Young age is a risk factor for dissemination to other body parts o Children (especially below 5 years of age) usually cannot expectorate sputum to allow a definite diagnosis**
- **As there are no specific symptoms and findings on clinical examination in children, the diagnosis is usually made after taking history of close contact with an adult with TB, failure to thrive, and persistent cough > 3weeks if the child has received broad specrum antibiotics.**
- **Tuberculin test may have supportive evidence**
- **Chest X ray is a common investigation, especially in military TB**
- **A Symptomatic child with tuberculin positive 10 mm, is considered as case regardless of BCG administration.**

651. Which of the following is true about skeletal tuberculosis in children?

- a) Most common sites are hip (40%), Spine (20%), Knee (10%)
- b) Most common site is upper limb
- c) Dorsolumbar spine is most commonly affected
- d) Progression to kyphosis deformity is least with lumbar lesions

Correct Answer - D

Ans. is 'd' i.e., Progression to kyphosis deformity is least with lumbar lesions

Tuberculosis in children

Extra-pulmonary tuberculosis accounts for 5 - 10% of total cases of tuberculosis in children

o About 1/3 of children with tuberculosis have extrapulmonary tuberculosis

The most common mode of presentation in a child less than 2 years is development of a gibbus of the dorsal area.

o Under the age of four, backache in children should be regarded as pathological unless and until proved otherwise.

o MRI cannot differentiate between pyogenic or tuberculous infection.

Vertebral tuberculosis is the most common form of skeletal tuberculosis in children, accounting for 50% of all cases in reported series. Approximate distribution in the skeleton are spine (50%), hip (20%), knee (10%), ankle and foot (5%), hand and wrist (3%), elbow (2%), shoulder (1 %), bursal sheaths and other bones (8%)

The thoracic spine is most commonly affected; the radiological features include bone marrow oedema and enhancement, posterior element involvement, canal stenosis, and spinal cord or nerve root compression. Inter-vertebral disc enhancement, vertebral collapse and kyphosis deformity are particularly suggestive of tuberculosis.

Those with dorsal lesions have maximal deformity at the time of presentation, partly due to the additive effect of the normal thoracic kyphosis. However, the rib cage offers protection against additional collapse. Patients with dorsolumbar lesions have the worst prognosis as they tend to collapse more during the active phase of the disease and even more during the growth period. Those with lumbar lesions have the best prognosis with the least deformity at presentation, a lesser increase during the active phase, and also a tendency for substantial decrease during the growth period.

652. In mechanical ventilation of a newborn with ARDS, the end tidal volume is kept at ?

a) 5 ml/kg

b) 7 ml/kg

c) 10 ml/kg

d) 15 ml/kg

Correct Answer - A

Ans. is 'a' i.e., 5 ml/kg

- **During mechanical ventilation of newborns, it has been found out that large tidal volumes can lead to lung injury, therefore small tidal volumes are recommended.**
- **In a healthy newly born tidal volume of 5-8 ml/kg may be used, however in a newborn with ARDS, a tidal volume of 4-6 ml/kg is recommended.**

653. A- 3 month old female infant weight 4 kg and is suffering from loose motions. On examination she is found to be suffering from some dehydration. The amount of ORS to be given to her in the first four hours will be -

a) 100 ml

b) 300 ml

c) 500 ml

d) 600 ml

Correct Answer - B

Ans. is 'b' i.e., 300 ml

Guidelines for treating patients with some dehydration (but not severe dehydration) treatment plan B

o Basic is to give 75 ml/kg of ORS in the first 4 hours.

***Weight
hours***

ORS solution to give in first 4

< 5 kg

200-400 ml

5-8 kg

400-600 ml

8-11 kg

600-800ml

11-16 kg

800- 1200 ml

16-30 kg

1200-2200 ml

>30 kg

> 2200 ml



654. All of the following are components of APGAR score except:
September 2008

a) Heart rate

b) Respiratory efforts

c) BP

d) Muscle tone

Correct Answer - C

Ans. C: BP

This test is a screening tool to determine whether a newborn needs medical attention to stabilize the heart or breathing function.

Examine the baby's:

- **Breathing effort**
- **Heart rate**
- **Muscle tone**
- **Reflexes**
- **Skin color**

Each category is scored with 0, 1, or 2, depending on the observed condition.

Breathing effort:

- **If the infant is not breathing, the respiratory score is 0.**
If the respirations are slow or irregular, the infant scores 1 for respiratory effort.
- **If the infant cries well, the respiratory score is 2. Heart rate is evaluated by stethoscope. This is the most important assessment:**

important assessment:

- If there is no heartbeat, the infant scores 0 for heart rate.
- If heart rate is less than 100 beats per minute, the infant scores 1 for heart rate.
- If heart rate is greater than 100 beats per minute, the infant scores 2 for heart rate.

Muscle tone:

- If muscles are loose and floppy, the infant scores 0 for muscle tone.
- If there is some muscle tone, the infant scores 1.
- If there is active motion, the infant scores 2 for muscle tone. Grimace response or reflex irritability is a term describing response to stimulation such as a mild pinch:
 - If there is no reaction, the infant scores 0 for reflex irritability.
 - If there is grimacing, the infant scores 1 for reflex irritability.
 - If there is grimacing and a cough, sneeze, or vigorous cry, the infant scores 2 for reflex irritability.

Skin color:

- If the skin color is pale blue, the infant scores 0 for color.
- If the body is pink and the extremities are blue, the infant scores 1 for color.

655. Fall on foot causes?

a) Pong fracture

b) Gutter fracture

c) Cerebral hemisphere divided into half

d) Compression fracture

Correct Answer - D

Answer- D. Compression fracture

Fall from height on foot causes:

- **Calcaneal fracture**
- **Compression fracture of spine / vertebrae**
- **Fracture around Hip / pelvis**

656. High fall on feet after accident causes fracture of

a) Occipital ring fracture

b) Temporal bone fracture

c) Parietal bone fracture

d) Motorcyclist fracture

Correct Answer - A

Answer- A. Occipital ring fracture

Ring fracture

- **An annular bone fracture at the base of the posterior fossa around the foramen magnum**
- **Accompanied by compression fractures of vertebrae and blunt trauma to soft tissue.**
- **Mechanism is fall or jump from heights, usually > 5 stories, onto the feet or buttocks.**

657. Essex lopresti lesion in upper limb-

- a) Injury to interosseous membrane**
- b) Radial head and DER fracture**
- c) Radial shaft**
- d) Radial shaft and radio-ulnar joint fracture**

Correct Answer - A

Ans. is 'a' i.e., Injury to interosseous membrane

The Essex-lopresti fracture is a fracture of the radial head with concomitant dislocation of the distal radio-ulnar joint with disruption of the interosseous membrane

658. Ponseti method is used for?

a) Rickests

b) Blount's disease

c) CTEV

d) Congenital vertical tallus

Correct Answer - C
Answer- C. CTEV

659. Most common cause of CTEV ?

a) Arthrogryposis multiplex congenita

b) Spina bifida

c) Idiopathic

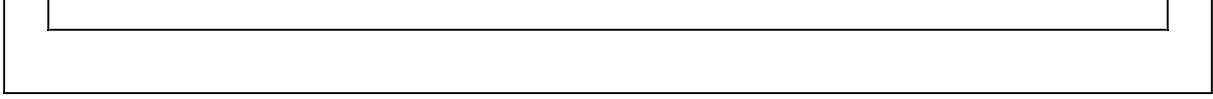
d) Neural tube defect

Correct Answer - C

Ans. is 'c' i.e., Idiopathic

Causes of CTEV

- **CTEV may be either primary or secondary**
 1. **Primary or Idiopathic**
 - **It is the most common type of CTEV**
 - **Foot deformity (CTEV) is the only manifestation, otherwise musculoskeletal system is normal.**
 2. **Secondary**
 - **CTEV is a local manifestation of a systemic syndrome.**
 - **Causes are :-**
 1. **Neurological disorders & neural tube defects eg myelomeningocele, & spinal dysraphism**
 2. **Paralytic disorder (due to muscular imbalance) as polio, spina bifida, myelodysplasia, & Fredreich's ataxia**
 3. **Arthrogryposis multiplexa**
 4. **Larsen syndrome**
 5. **Freeman- Sheldon syndrome**
 6. **Diastrophic dwarfism**
 7. **Sacral agenesis, tibial deficiency, constriction rings & amniotic bands**



660. Avascular necrosis of bone is most common in

a) Scapula

b) Scaphoid

c) Calcaneus

d) Cervical spine

Correct Answer - B

B i.e. Scaphoid

They are:

- 1. The head of the femur (after fracture of the femoral neck or dislocation of the hip).**
- 2. The proximal part of the scaphoid (after fracture through its waist).**
- 3' The lunate (following dislocation)**
- 4. The body of the talus (after fracture of its neck)**

661. Holdsworth classification of thoracolumbar spine fracture is based on how many columns of spine?

a) Two

b) Three

c) Five

d) Four

Correct Answer - A

Answer- A. Two

Holdsworth,s proposed two column concept of thoracolumbar spine fracture

- 1. Anterior column : Consists vertebral body, annulus fibrous, Anterior and posterior longitudinal ligaments**
- 2. posterior column: Consists of vertebral arch (pedicle, facets, laminae) and posterior ligaments (ligamentum flavum, interspinous and supraspinus ligament)**

662. Most common primary malignant bone tumor -

a) Osteosarcoma

b) Osteochondroma

c) Multiple myeloma

d) Osteoclastoma

Correct Answer - C

Ans. is 'c' i.e., Multiple myeloma

663. Which of the following bone grafts have osteogenic properties ?

a) Calcium sulphate

b) Calcium triphosphate

c) Demineralized bone matrix

d) Bone marrow aspirate

Correct Answer - D

Ans. is 'd' i.e., Bone marrow aspirate

664. All are features of pagets disease except -

a) Defect in osteoclasts

b) Common in females

c) Can cause deafness

d) Can cause osteosarcoma

Correct Answer - B

Answer- B. Common in females

Paget's disease is stightly more common in males and is seen after 40 years of age,

- **The pelvic and tibia being the commonest sites, and femur, skull, spine (vertebtae) anil clavicle the next common.**
- **Deafness and osteosarcoma (rarely) are complications of Paget's disease.**
- **Primary defect is in osteoclasts**

665. Maffucci syndrome is associated with which bone tumor?

a) Enchondroma

b) Osteochondroma

c) Multiple myeloma

d) Chondrosarcoma

Correct Answer - A

Answer- A. Enchondroma

- **Enchondroma is a benign tumor characterized by the formation of mature hyaline cartilage.**
- **The most common site is short tubular bones of hand, i.e., Phalanges (most common) and metatarsals. When tumor is located centrally in the bone, it is called enchondroma. When it is located on the surface (juxtacortical) it is called chondroma.**

Mostly enchondromas are solitary, however following syndromes may have multiple enchondroma:-

- 1. Ollier's disease**
- 2. Maffucci's syndrome**

666.

Extra cervical rib usually compresses which part of brachial plexus -

a) Lateral cord

b) Upper trunk

c) Middle trunk

d) Lower trunk

Correct Answer - D

Answer- D. Lower trunk

Extra cervical rib can cause thoracic outlet syndrome in which following structures are compressed:

- 1. Lower trunk of brachial plexus (C8 and T1)**
- 2. Subclavian vessels**

667. Intraarticular steroid is least preferred in osteoarthritis is -

a) Triamcnenolone

b) Hydrocortisone

c) Prednisolone

d) Betamethasone

Correct Answer - C

Answer- C. Prednisolone

Corticosteroids used for intraarticular injections:-

1. Hydrocortisone acetate (Hydrocortone).
2. Methylprednisolone acetate (Depo-medrol).
3. Triamcinalone acetonide (Aristocort).
4. Dexamethasone sodium phosphate (Decadron).
5. Betamethasone sodium phosphate and acetate.

668. Fracture of the Anterolateral lower end tibia -

a) Tillaux fracture

b) Bosworth fracture

c) Gosselin fracture

d) Segond fracture

Correct Answer - A
Answer- A. Tillaux fracture

669. Pre-cancerous lesion of bone?

a) Paget disease

b) Chronic osteomyelitis

c) Benign giant cell tumor

d) All of above

Correct Answer - D

Ans. is 'd' i.e., All of above

Pre-cancerous lesion of bone

- **Multiple exostoses**
- **Ollier's disease**
- **Benign giant cell tumor**
- **Osteblastoma**
- **Chondroblastoma**
- **Chronic osteomyelitis**
- **Paget's disease**

670. Triangular space between clitoris and hymen ?

a) Fourchette

b) Fossa navicularis

c) Vestibule

d) Labia minora

Correct Answer - C

Ans. is 'c' i.e., Vestibule

Female genitals :?

- The labia majora are the two elongated folds of skin projecting downwards and backwards from the mons veneris.
- The *labia minora* are two thin folds of skin just within labia majora.
- The lower portions of labia called fourchette.
- The depression between fourchette and the vaginal orifice is called fossa navicularis.
- The Vestibule is the triangular surface which *extends from clitoris (above) to hymen (below) and labia minora (laterally)*.
- Urethral opening is 2.5 cm behind the clitoris, and immediately in front of vaginal opening.
- Vulva includes mons veneris, clitoris, labia majora, labia minora, vestibule, hymen and urethral opening.

671. Fourchette is formed by?

- a) Joining of labia majora
- b) Joining of labia minora
- c) Joining of labia majora with minora
- d) Junction of cervix and vagina

Correct Answer - B

Ans. is'b'i.e., Joining of labia minora

Fourchette :

- **The fourchette is a thin fold of skin, identified when the labia are separated, and it is often torn during parturition.**
- **The fossa navicularis is the small hollow between the hymen and the fourchette.**
- **The labia minora lie between the labia majora, with which they merge posteriorly, and are separated into two folds as they approach the clitoris anteriorly.**
- **The anterior folds unite to form the prepuce or hood of the clitoris.**
- **The posterior folds form the frenulum of the clitoris.**
- **Inferiorly, the labia minora extend to approach the midline as low ridges of tissue that fuse to form the fourchette**

672. Gland homologous to prostate in females is?

a) Gartner's gland

b) Skene's gland

c) Bartholin's gland

d) Cowper's gland

Correct Answer - B

Ans. B. Skene's gland

- **In female human anatomy, Skene's glands or the Skene glands known as the lesser vestibular glands, paraurethral glands, or homologous female prostate are glands located on the anterior wall of the vagina, around the lower end of the urethra.**

673. Primary amenorrhea is when :

a) Menstruation does not occur even after 18 year

b) Menstruation does not occur even after 15 year of age

c) Imperforate hymen exists

d) None of the above

Correct Answer - B

Menstruation does not occur even after 15 year of age

674. Incomplete uterine rupture is defined as?

- a) Disruption of part of scar
- b) Disruption of entire length of scar
- c) Disruption of scar including peritoneum
- d) Disruption of scar with peritoneum intact

Correct Answer - D

Ans. is 'd' i.e., Disruption of scar with peritoneum intact

Incomplete rupture :

- In an Incomplete uterine rupture, the mother's peritoneum remains intact.
- The peritoneum is the membrane that lines the abdominal cavity to support abdominal organs.
- It also acts as a channel for blood vessels and nerves.
- An incomplete uterine rupture is significantly less dangerous with fewer complications to the delivery process.

Complete rupture:

- During a Complete uterine rupture, the peritoneum tears and the contents of the mother's uterus can spill into her peritoneal cavity.
- The peritoneal cavity is the fluid-filled gap that separates the abdomen walls and its organs.
- It is suggested that delivery via cesarean section (C-section) should occur within approximately 10 to 35 minutes after a complete uterine rupture occurs.

- **The fetal morbidity rate increases dramatically after this period.**

675. The danger of internal podalic version in obstructed labour is :

a) Perineal tear

b) Cervical tear

c) Rupture of lower uterine segment

d) Rupture of upper uterine segment

Correct Answer - C

Rupture of lower uterine segment

Features	Upper uterine segment	Lower uterine segment
Anatomical position	Upper uterine part	It is formed from the uterine Dart between anatomical internal os and histological internal os during labour
During labour	:Active segment; contracts, retracts, and expels the fetus.	Relatively passive segment dilate and form greatly expanded , thinned out tube through which the foetus can pass
Thickness during contraction	Becomes progressively thickened	Becomes progressively thinned
Consistency during contraction	Firm	Soft
Peritoneal attachment	Firm	Loose

Retractile property	Good	Poor
Placental attachment	Left Lateral wall or upper segment	Placenta previa

676. Viability of fetus is beyond ?

a) 25 weeks

b) 28 weeks

c) 30 weeks

d) 32 weeks

Correct Answer - B

Ans. is 'b' i.e., 28 weeks

Viability means the physical ability of a fetus to lead a separate existence after birth apart from its mother, by virtue of a certain degree of development. A child is viable after 210 days (7 months) of intrauterine life, and in some cases after 180 days (6 months) but in most of these cases fetus is immature.

677. Cells seen at the junction between two layers of placenta are?

a) Hofbauer cell

b) Hofmann cells

c) Amniogenic cells

d) Uterine natural killer cells (UNK)

Correct Answer - A

Ans. is 'a' i.e., Hofbauer cell

- **Hofbauer cells (HBCs) are placental macrophages that are present in the core of villus.**
- **Major cell type in placenta include syncytiotrophoblasts which line intervillous space and are in direct contact of maternal blood.**
- **Underlying stromal cells adjacent to fetal capillaries largely consisting of trophoblasts and Hofbauer cells (fetal tissue macrophages)**

678. Which of the following is not true of placenta?

a) Number of cotyledons increases with gestational age

b) Weight of fetus and placenta equal at 4 months

c) After delivery weight of placenta is 500 gm

d) At term about four fifths of placenta of maternal origin

Correct Answer - D

Ans. is 'd' i.e., At term about four fifths of placenta of maternal origin

Placenta

- Human placenta is discoid in shape.
- It has two surfaces, fetal and maternal.
- In the beginning the placenta growth is more rapid than that of the fetus, by 17th week they have equal weight.
- By term placental weight is one sixth of fetal weight.
- Maternal surface constitute 15-20 somewhat polygonal placental lobule, or cotyledon.
- Each lobule is supplied with a single truncal branch of chorionic artery.
- And each lobule has a single vein so that so that lobules constitute functional units of placental architecture.

Placenta at term

- At term it is almost circular disc with a diameter of 15-20 cm and thickness about 3 cm at center.
- It's approximate weight is 500 gm.
- The ratio of placental: fetal weight is 1: 6 and occupies

about 30% of uterine wall.

- **At term, about four fifths of placenta is fetal in origin.**

679. True about placental hormone is WE

a) hCS is diabetogenic

b) hCG rise 1/t nausea

c) Progesterone production require fetal steroidogenic tissue

d) Luteal - placental shift at 8-10 weeks

Correct Answer - C

C i.e. Progesterone production require fetal steroidogenic tissue

- **At 6-8 weeks there is transfer of functions of corpus luteum to placenta.**
- **Before 6 weeks corpus luteum secretes 17 hydroxy progesterone.**
- **After the development of trophoblast, progesterone is secreted and synthesized from placenta.**
- **The average levels of progesterone at 12th , 28th week and at term are 25 ng/ml ,80 ng/ml and 300 ng/ml respectively.**
- **After delivery plasma progesterone decreases rapidly and becomes undetectable after 24 hrs.**

680. Dose of centchroman is ?

a) 30 mg

b) 60 mg

c) 120 mg

d) 240 mg

Correct Answer - A

Ans. is 'a' i.e., 30 mg

Cetchroman (Saheli)

- **Ormeloxifene, research product of Central Drug Research Institute, Lucknow, India.**
- **It is a potent non - steroidal compound with potent anti - estrogenic and weak estrogenic properties. It is taken orally (30 mg) twice a week for first three months then once a week.**
- **It works primarily by preventing implantation of fertilized ovum. It does not inhibit ovulation.**
- **It is avoided in PCOD, with liver and kidney diseases and in tuberculosis. There may be a tendency of oligomenorrhoea.**
- **The failure rate is 1 - 4/100 woman years of use. Failure rate is less with increased doses. It is devoid of any significant adverse metabolic effect.**
- **This may also be used as a emergency contraceptive.**

681. Contraceptive LNG-IUD (levonorgesterol intra-uterine device) has the cumulative pregnancy rate at 5 yrs of:

a) 0.5

b) 1.0

c) 1.5

d) 2.0

Correct Answer - A

Cumulative 5-year pregnancy rate for LNG-IUD (levonorgestrel intra-uterine device) is 0.5 %.

Ref: Textbook of Gynaecology Edited By Shaw, Soutter, Stanton, 2nd Edition, Page 399 ; Clinical Gynecologic Endocrinology and Infertility By Marc A. Fritz, Leon Speroff, 2010, Page 1386 ; Textbook Preventive Social Medicine Park, 19th Edition, Page 395

682. Male factor is responsible for infertility in how much percentage -

a) 5%

b) 20%

c) 30%

d) 50%

Correct Answer - C

Ans. is 'c' i.e., 30%

Infertility:

- **Male factor: 30%**
- **Tubal, uterine & peritoneal factor: 25%**
- **Ovarian factor: 25%**
- **Cervical factor: 10%**
- **Unexplained factor: 10%**

683. In endometriosis, cause of infertility is :

a) Immobility of tubes

b) Anovulation

c) Tubal block

d) A, B and C All Correct

Correct Answer - D
A, B and C All Correct
Infertility:

Male factor: 30%

Tubal, uterine & peritoneal factor: 25%

Ovarian factor: 25%

Cervical factor: 10%

Unexplained factor: 10%

684. Maximal level of cardiac output is seen at:
September 2009

a) 22-26 weeks of pregnancy

b) 26-30 weeks of pregnancy

c) 30-34 weeks of pregnancy

d) 34-38 weeks of pregnancy

Correct Answer - C

Ans. C: 30-34 Weeks of Pregnancy

The cardiac output starts to increase from 5th week of pregnancy and reaches its peak 40-50% at about 30-34 weeks. Cardiac output increase further during labour (+50%) and immediately following delivery (+70%) It returns to pre-pregnancy level by 4 weeks time after labour.

685. Dysmenorrhoea is due to ?

a) Ovulation

b) Decreased progesterone

c) Increased progesterone

d) Secretory epithelium

Correct Answer - B

Ans. is 'b' i.e., Decreased progesterone

- **Dysmenorrhoea refers to painful cramping pain accompanying menstruation.**
 - **Dysmenorrhoea in ovulatory cycle is due to release of PGs, in endometrium induced by progesterone**
- Dysmenorrhoea is classified into :**
- **Primary dysmenorrhoea refers to one that is not associated with any identifiable pelvic pathology. It is now clear that the pathogenesis of pain is attributable to a biochemical derangement.**
 - **Secondary dysmenorrhoea refers to the one associated with the presence of organic pelvic pathology, i.e. fibroids, adenomyosis, PID endometriosis. Unilateral dysmenorrhoea occurs in a rudimentary horn of a bicornuate uterus**

686. Minimum number of ANC visits required as per 2010 MOHFW (Ministry of Health and Family Welfare) guidelines ?

a) 1

b) 2

c) 3

d) 4

Correct Answer - D

Ans. is 'd' i.e., 4

Now, at least 4 antenatal visits, during pregnancy, are recommended.

**687. In hypergonadotropic hypogonadism
FSH level is?**

a) <20 m IU/ ml

b) <40 m IU/ ml

c) >20 m IU/ ml

d) >40 m IU/ ml

Correct Answer - D

Ans. is'd'i.e., > 40 m IU/ml

FSH LEVEL:

- **Age 0-7 years: <6.7 m IU/ml**
- **Age >7 years:**
- **Follicular phase: 3.1 -7.9 ml IU/ml**
- **Ovulation peak : 2.3 – 18.5 ml IU/ml**
- **Luteal phase :1.4- 5.5 ml IU/ml**
- **Postmenopausal: 30.6-106.3 ml IU/ml**
- **Hypergonadotropic hypogonadism: >40ml IU/ml**

688. Most common histological variety of Uterine carcinoma is?

a) Squamous cell carcinoma

b) Columnar cell carcinoma

c) Adeno carcinoma

d) Mixed carcinoma

Correct Answer - C

Ans. is 'c' i.e., Adenocarcinoma

Carcinoma of uterus :

- **Endometrial carcinoma is the most common invasive cancer of the female genital tract and accounts for 7% of all invasive cancer in women.**
- **On histologic examination, most endometrial carcinomas (about 85%) are adenocarcinomas characterized by more or less well-defined gland patterns closely resembling normal endometrial epithelium.**

689. The symptoms of menopause are best treated with:

a) Oestrogen

b) Progesterone

c) Testosterone

d) Clomiphene

Correct Answer - A

Symptoms of menopause are best treated with oestrogen. Oestrogen has been found to be effective in the prevention of osteoporosis, treatment of vasomotor symptoms, and treatment of vulvovaginal atrophy.

Complications associated with use of estrogen are:

- **Endometrial Cancer: estrogen stimulation of the endometrium, unopposed by progesterone, causes endometrial proliferation, hyperplasia, and, finally, neoplasia.**
 - **Breast Cancer**
 - **Thromboembolic Disease**
 - **Stroke**
 - **Uterine Bleeding**
 - **Gallstone disease**
 - **Generalized edema, mastodynia and breast enlargement**
- Contraindications of estrogen replacement therapy:**
- **Undiagnosed abnormal vaginal bleeding**
 - **Suspected, or history of cancer of the breast**

- **Suspected estrogen-dependent neoplasia**
- **Active deep vein thrombosis**
- **Pulmonary embolism**
- **History of these conditions:arterial thromboembolic disease (myocardial infarction, stroke); liver dysfunction or disease.**

Ref: Nathan L. (2013). Chapter 59. Menopause & Postmenopause. In A.H. DeCherney, L. Nathan, N. Laufer, A.S. Roman (Eds), *CURRENT Diagnosis & Treatment: Obstetrics & Gynecology*, 11e.

690. Which of the following is the most common cause of acute pyelonephritis in patients without Urological abnormalities or urinary calculi?

a) *Pseudomonas aeruginosa*

b) *Proteus mirabilis*

c) *Escherichia coli*

d) *Serratia marcescens*

Correct Answer - C

In general, gram-negative organisms are the most common causes of acute urinary tract infections in patients who do not have complicating abnormalities of the urinary tract, such as obstruction from calculi or other causes. **Among the gram-negative organisms, *Escherichia coli* is the bacterium that is most frequently isolated from urine cultures in these patients.** Different species of *Pseudomonas*, *Proteus*, *Serratia*, and *Klebsiella* may also be responsible for so-called uncomplicated urinary tract infections, including acute pyelonephritis, but are less commonly implicated than *Escherichia coli*.

Ref: Lerma E.V. (2009). Chapter 37. Chronic Tubulointerstitial Nephritis. In E.V. Lerma, J.S. Berns, A.R. Nissenson (Eds), *CURRENT Diagnosis & Treatment: Nephrology & Hypertension*.

691. In which of the following infection 'strawberry cervix' is seen?

a) *Trichomonas vaginalis*

b) *Chlamydia*

c) *Candida albicans*

d) *Herpes simplex*

Correct Answer - A

Multiple punctuate spot on the cervix gives it the appearance of a strawberry hence called so.

This is due to capillary dilation as a result of the inflammatory response to *Trichomonas vaginalis*.

Classically, with a cervical smear, infected women have a transparent "halo" around their superficial cell nucleus.

T. vaginalis was traditionally diagnosed via a wet mount, in which "corkscrew" motility was observed.

692. Which of the following Doppler findings in IUGR is associated with worst prognosis?

a) Dicrotic notch

b) Reversal of diastolic flow

c) Absence of diastolic flow

d) Absence of systolic flow

Correct Answer - B

Doppler screening is done in anatomically normal baby's in which a growth retardation is detected.

Normally the diastolic flow increases as pregnancy progresses.

Reduced or absent or reversed diastolic flow in the umbilical artery indicates fetal jeopardy and poor perinatal outcome.

Doppler velocimetry findings in IUGR are elevated uterine artery systolic/diastolic ratio > 2.6 and or presence of diastolic notch.

Ref: Textbook of Obstetrics By D. C Dutta, 6th Edition, Page 463.

693. Gestational sac can be seen using ultrasonography at the earliest by:
Gujarat 07

a) 3rd week

b) 4th week

c) 5th week

d) 8th week

Correct Answer - C
Ans. 5th week

694. Which of the following is not a pre-requisites for transvaginal sonography (TVS)?

a) Consent

b) Fullbladder

c) Empty bladder

d) Lithotomyposition

Correct Answer - B

Ans. B. Full bladder

- **Transvaginalsonographyisbest performedwith an emptybladder, which enables the pelvic organs to reach acloser proximity to the tip of the high-frequency transvaginal probe.**
- **On the other hand trans abdominal sonography is done with full bladder to get an overview of anatomy.**

695. Which of the following is the most sensitive or gold standard test for assessing HCG in maternal serum?

a) Radioimmune assay

b) ELISA

c) Latex test

d) Bioassay

Correct Answer - A

The radio-immune assay stands out to be the most sensitive test to measure the beta sub-unit of human chorionic gonadotropin in which a quantitative assessment of levels more than 5mIU/ml is read as positive.

Thus even very minute quantities of the hormone can be detected as following the implantation of the blastocyst.

The antibodies used in this assay is highly specific for the beta subunit of the hCG.

Other than pregnancy, radioimmuno assay is also used for follow-up of cases like hydatiform mole and choriocarcinoma.

Ref: Human Chorionic Gonadotropin (hCG) By Larry Cole, Laurence A. Cole, Stephen Butle, Page 13-15; Textbook of Obstetrics, D C Dutta 6th edition, Page 61; Mudaliar and Menon's Clinical Obstetrics 9th edition, Page 53-55

696. Commonest organism causing Acute Salpingitis:

a) Mycoplasma

b) Chlamydia

c) Gonococcal

d) Treponema

**Correct Answer - C
Gonococcal**

697. Which of the following is the investigation of choice in cholestasis of pregnancy?

a) Serum bilirubin levels

b) Serum bile acids levels

c) Serum alkaline phosphatase levels

d) Serum glutathiones transferase levels

Correct Answer - B

In patients with cholestasis of pregnancy the levels of serum bile acids are elevated 30-100 times the upper limit of normal. Levels of AST, ALT and alkaline phosphatase are only mildly elevated.

Intrahepatic cholestasis of pregnancy:

The major risk factors for IHCP include multiparity, advanced maternal age, family history of IHCP, and pruritus while on oral contraceptive medicines.

Patients often presents in the third trimester of pregnancy with pruritus beginning centrally and spreading peripherally.

20% develop pruritus and jaundice. Ursodiol and cholestyramine are the first agents of choice in the treatment of pruritus.

Ref: Ukomadu C. (2012). Chapter 8. Hepatic Complications of Pregnancy. In N.J. Greenberger, R.S. Blumberg, R. Burakoff (Eds), *CURRENT Diagnosis & Treatment: Gastroenterology, Hepatology, & Endoscopy, 2e*

698. Treatment of choice for Intrahepatic Cholestasis in Pregnancy is:

a) Cholestyramine

b) Ursodiol (Ursodeoxycholic acid)

c) Corticosteroids (Dexamethasone)

d) Antihistaminics

Correct Answer - B

Ursodeoxycholic acid (10-15 mg/kg/day) is the drug of choice in the treatment of intrahepatic cholestasis in pregnancy.

It relieves pruritus, reduces bile salt levels in maternal serum and may reduce the frequency of fetal complications.

It improves serum liver test and liver histology in cholestatic disease.

Ref: Oxford Textbook of Medicine, 4th Edition, Pages 422 ; Textbook of Obstetrics By DC Dutta, 6th Edition, Page 291 ; Bile Acids and Pregnancy By U. Leuschner, P. A. Berg, J. Holtmeier, 2002, Page 36.

699. Which of the following is the best marker for intrahepatic cholestasis of pregnancy?

a) AST & ALT (Transaminases)

b) Bile Acids

c) Bilirubin

d) Alkaline Phosphatase

Correct Answer - B

The rise in serum bile acids is sufficient in the third trimester is sufficient to confirm the clinical diagnosis of idiopathic intrahepatic cholestasis of pregnancy which is also accompanied by severe, intractable, generalized itching and sometimes clinical jaundice.

Ref: Schiff's Diseases of the Liver By Eugene R. Schiff, Willis C Maddrey, MD, Macp, Willis C. Maddrey, Michael F. Sorrell, Pages 274-276; Medical Disorders in Obstetric Practice By Michael De Swiet, 284 - 286.

700. Malaria in pregnancy doesn't cause?

a) HELLP

b) IUGR

c) IUD

d) Preterm

Correct Answer - A

Ans. is'a'i.e., HELLP

Effect of malaria on pregnancy:

- IUGR
- Abortion
- IUD
- Preterm
- Low birthweight

**701. During application of the cup in
Ventouse, 'knob' of the cup points
towards:
March 2013**

a) Brow

b) Chin

c) Neck

d) Occiput

Correct Answer - D

Ans. D i.e. Occiput

Ventouse Delivery:

The suction cup should be placed symmetrically astride the sagittal suture at the median flexion point (pivot point) which is 2 cm anterior to the posterior fontanelle or 6 cm posterior to anterior fontanelle

Indications

- **As an alternative to forceps operation.**
- **Deep transverse arrest with adequate pelvis**
- **Delay in descent of head of the second baby of twins**
- **Delay in first stage due to uterine inertia or primary cervical dystocia**

Contraindications

- **Prematurity**
- **Head not engaged**
- **Fetal distress**
- **Pelvic contraction**

- **Transverse lie**
 - **After coming head of breech**
 - **Partially dilated cervix**
 - **Congenital anomalies**
 - **Dead fetus.**
- Complications**
- **Cephalhematoma**
 - **Subaponeurotic or subgaleal haemorrhage**
 - **Chignon**
 - **Retinal hemorrhage**

702. Nerve commonly injured in forceps delivery is ?

a) Common peroneal

b) Obturator

c) Lateral cutaneous nerve of thigh

d) Sciatic

Correct Answer - B

Ans. is 'b' i.e., Obturator

- **Obturator nerve injury (L2-4) may result during forceps delivery in lithotomy position resulting from acute Flexion of hip, hematoma, trauma from forceps blade.**

703. Most malignant type of pustular psoriasis is ?

a) Palmo - planter pustolosis

b) Acrodermatitis continua

c) Pustular bacterids

d) Von Zumbusch type

Correct Answer - D

Ans. is'd'i.e., Von Zumbusch type

[Ref: Neena Khanna 3d/e p. 44]

- **Von Zumbusch type of pustular psoriasis is the suddenly developing most serious type, characterized by severe systemic upset, swinging pyrexia, arthralgia and high polymorphonuclear lymphocytes.**
- **The skin first becomes erythrodermic and then develops sheets of sterile pustules over trunk and limbs.**
- **Pustules become confluent to form "lakes of pus".**

704. Identify the condition?



a) Guttate psoriasis

b) Lichen planus

c) Pityriasis rubra pilaris

d) Verruca plana

Correct Answer - A

Ans. A. Guttate psoriasis

(Ref: Neena I(hanna 4th/e p. 40-48; Roxburg IVh/e p. 128-42; Venkataram [t/e p. 49]

- **The Picture is showing multiple, discrete, guttate (drop-like) papulo-plaques with a pinkish hue with fine scales, on back.**
- **Classical presentation of guttate psoriasis.**
- **Occurs in children and adult.**
- **Precipitated by upper respiratory tract infection (Streptococcal tonsillitis).**

705. Most unstable leprosy is ?

a) BB

b) BL

c) BT

d) TT

Correct Answer - A

Ans. is'a'i.e., BB

[Ref: IADVL Textbook 2d/e p. 2015]

- **Stable forms of leprosy -> polar forms of leprosy, i.e., Tuberculoid leprosy (TT) and lepromatous leprosy (LL).**
- **Unstable forms of leprosy -+ Borderline forms of leprosy, i.e., Borderline tuberculoid (BT), borderline (BB) and Borderline lepromatous (BL). BB is the most unstable form.**

706. Immunofluorescence of pemphigus vulgaris shows?

a) Linear IgG in BMZ

b) Granular IgG in BMZ

c) Fish net appearance

d) IgA deposition in dermal papillae

Correct Answer - C

Ans. is 'c' i.e., Fishnet appearance

Ref: Neena Khanna Srh/e p. 61, 63

707. Treatment of choice of scabies in pregnancy ?

a) Ivermectin

b) Gamma-benzen hexachloride

c) Permethrin

d) Gamma-benzen hexachloride

Correct Answer - C

Ans. is 'c' i.e., Permethrin

'Permethrin is the drug of choice for infants as well as pregnant and nursing women'. — Evidence based dermatology

- **Alternatives are benzyl-benzoate and crotamitone.**
- **Gamma benzen hexachloride and ivermectin are not recommended.**

708. Complication of TEN are all except ?

a) Hypothermia

b) Sepsis

c) Ocular damage

d) Hepatitis

Correct Answer - D

Ans. is'd'i.e., Hepatitis

Ref: Rook's 8th/e p. 76'16

- **Complications of toxic epidermal necrolysis (TEN)**
- **Acute -+ Prerenal ARF, fluid & electrolyte loss, hypothermia, bacterial infections & septicemia, interstitial pneumonitis, Hypermetabolism (insulin resistance).**
- **Chronic → Ocular complications (conjunctivitis, ectropion or entropion, corneal ulcer), esophageal stricture, phimosis, vaginal synechiae, orogenital ulcers.**

709. Multinucleated giant cell on Tzanck smear is not seen in?

a) Herpes simplex

b) Varicella

c) Herpes zoster

d) Molluscum contagiosum

Correct Answer - D

Ans. is'd'i.e., Molluscum contagiosum

Ref: ADVL 3'd/e p' 342

710. Hanging curtain sign seen in?

- a) Pityriasis rosea
- b) Pityriasis Versicolor
- c) Pityriasis rubra pilaris
- d) Pityriasis lichenoides chronica

Correct Answer - A

Pityriasis rosea

REF: Dermatology. 1995; 190(3): 252. PubMed PMID: 7599393, Clinical Pediatric Dermatology - By Thappa page 104

PITYRIASIS ROSEA

The primary eruption, herald patch (Mother spot) is a single oval or round patch with a central wrinkled salmon colored area and a darker peripheral zone separated by a "collarette of scales" (when stretched across the long axis, the scales tends to fold across the line of stretch, the so called Hanging curtain sign).

711. The wood's lamp filter is made of -

a) Tin and chromium oxied

b) Nickel oxide and silica

c) Copper oxide and Barium oxide

d) Zinc oxide

**Correct Answer - B
B i.e. Nickel oxide and silica**

712. Wavelength of light produced by wood's Lamp is ?

a) 320nm

b) 360 nm

c) 400 nm

d) 760-800 nm

Correct Answer - B
B i.e. 360 nm

713. Coral red-fluorescence wood's Lamp seen in?

a) Porphyria cutanea tarda

b) Erythrasma

c) Livedo-reticuliris

d) Hypomelanosis

Correct Answer - B

B i.e. Erythrasma

Disease	Colour
<i>Tinea capitis</i>	Light / yellow-green
Tinea/Pityriasis versicolor	Apple-green / golden? yellow
Pseudomonas infection	Greenish white / pale blue
Psoriasis	Pale blue
Tuberous sclerosis	Blue white (Ash leaf spots)
Vitiligo	Total white
<i>Erythrasma</i> (<i>Corynebacterium minutissimum</i>)	Coral red/ pink
<i>Porphyria</i>	Red/Pink

cutanea
tardaQ

urine0

714. Human papillomavirus is most commonly associated with

a) Rectal polyps

b) Prostate cancer

c) Condyloma acuminatum

d) Hepatic carcinoma

Correct Answer - C

Papillomavirus infects the skin or mucosa and causes benign tumors. The lesion is termed condyloma acuminatum. These tumors may undergo malignant conversion and become squamous cell carcinomas. Classification of the human papillomavirus is done by DNA hybridization, and to date 46 types have been recognized. Some types, such as 16 and 18 are more frequently associated with carcinoma, while others, such as 6 and 11, are associated with benign tumors or warts.

**715. Scarring alopecia is seen
in:**

a) T. capitis

b) Androgenic alopecia

c) Alopecia areata

d) Lichen planus

**Correct Answer - D
D i.e. Lichen planus**

716. Fordyce's (Spots) Granules in oral cavity arise from:

a) Mucous glands

b) Sebaceous glands

c) Taste buds

d) Minor salivary glands

Correct Answer - B
Ans. B. Sebaceous glands

717. A 43 year old female presented with pigmentation on neck, axilla and other flexures. She is diabetic for few years and not under control. She is worried about the chance of skin cancer. All of the following are premalignant conditions, EXCEPT:

a) Solar keratosis

b) Acanthosis nigricans

c) Bowen's disease

d) Porokeratosis

Correct Answer - B

- Acanthosis nigricans is probably the most readily recognized skin manifestation of diabetes and most cases are linked to obesity and insulin resistance.
- True association is rare between acanthosis nigricans and malignancy.
- It presents as brown to gray-black papillomatous cutaneous thickening in the flexural areas, including the posterolateral neck, axillae, groin, and abdominal folds.

Ref: Kalus A.A., Chien A.J., Olerud J.E. (2012). Chapter 151. Diabetes Mellitus and Other Endocrine Diseases. In L.A. Goldsmith, S.I. Katz, B.A. Gilchrest, A.S. Paller, D.J. Leffell, N.A. Dallas (Eds), Fitzpatrick's Dermatology in General Medicine, 8e.

718. Koebner's phenomenon seen in ?

a) Psoriasis

b) Lichen nitidus

c) Vitiligo

d) All the above

Correct Answer - D

Ans. is `d' i.e., All the above

- ***See explanation- 2 of session- 1 of Skin of All India 2014-15 pattern of this book.***

719. Pseudo Koebner's phenomenon is seen in -

a) DLE

b) Lichen planus

c) Kaposi sarcoma

d) Plane warts

Correct Answer - D
Ans. is 'd' i.e., Plane warts

720. Which of the following drugs can cause exacerbation of psoriasis?

a) Metformin

b) Interferon alpha

c) Lithium

d) All the above

Correct Answer - D
Ans. is 'd' i.e., All the above

721. Treatment options for acne vulgaris is/are ?

a) Topical erythromycin

b) Oral Minocycline

c) Isotretinoin

d) All the above

Correct Answer - D

Ans. is 'd' i.e., All the above

Drugs used for treatment of Acne

- **Topical**
 1. **Comedolytics** : - Act by removing follicular plug, thereby reopen pilosebaceous ostia. Comedolytics are ; Retinoic acid, Adapalene, Azelaic acid, Tazarotene.
 2. **Antibiotics** : - Decrease bacterial population and have anti-inflammatory effect. Topical antibiotics for acne are ; Erythromycin, clindamycin, Benzoyl peroxide.
- **Systemic**
 1. **Antibiotics** : - Decrease bacterial population and have anti-inflammatory effect. Systemic antibiotics for Acne vulgaris are; Tetracycline, minocycline, doxycycline, Erythromycin, Roxithromycin, Cotrimoxazole, Dapsone.
 2. **Retinoids [Isotretinoin (11-cis retinoic acid)]** :- Removes follicular obstruction, and also suppresses sebum secretion (Sebostatic).
 3. **Antiandrogens** : - Decrease sebum secretion by decreasing androgens. Examples; Cyproterone,

Ethinylestranol, Spironolactone. Cyproterone acetate (along with ethinylestranol) is particularly useful in teenage girls with mensural irregularities.

722. Most important cytokine for type II lepra reaction is ?

a) IL 1

b) IL 6

c) TNF alpha

d) INF gamma

Correct Answer - C
Ans. is 'c' i.e., TNF alpha

723. Stage 1 cutaneous T cell lymphoma treatment is ?

a) PUVA

b) Biological response modifiers

c) Systemic chemotherapy

d) Extracorporeal photopheresis

Correct Answer - A
Ans is 'a' i.e., PUVA

724. Exanthema is caused by which drug ?

a) Phenytoin

b) Valproate

c) Digoxin

d) NTG

Correct Answer - A
Ans. is 'a' i.e., Phenytoin

725. Site of Topical block of sphenopalatine ganglion is?

a) Above the superior turbinate

b) Posterior to Superior turbinate

c) Posterior to middle turbinate

d) Posterior to inferior turbinate

Correct Answer - C

Ans. is 'c' i.e., Posterior to middle turbinate

Ref: Morgan Anesthesiologist 4h/e. ch. 78; Lee's Synopsis of Anaesthesia

- **13n/e p. 411; Dhingra 4h/e p. 131**
- **Sphenopalatine ganglion block may be used in the treatment of acute migraine headache, acute cluster headaches, and a variety of facial neuralgias including Sluder's, Vail's and Gradner's syndromes.**
- **Most of the posterior two-thirds of nasal cavity (both septum and lateral wall) is supplied by branches of sphenopalatine ganglion which can be blocked by placing a pledget of cotton soaked in anaesthetic solution near the sphenopalatine foramen situated at the posterior extremity of middle turbinates.**

726. Cuff pressure in Endotracheal intubation with prolonged ventilation should be less than?

a) 20 mm Hg

b) 30 mm Hg

c) 40 mm Hg

d) 50 mm Hg

Correct Answer - A

Ans. is'a'i.e., 20 mm Hg

Ref.: Miller's Anacs Physiology 7/e Chap. 50

- **Cuff pressure 18-22mmHg (25-30 cm H₂O) is recommended.**

727. Example of long acting neuromuscular blocker is:

a) Rocuronium

b) Vecuronium

c) Pancuronium

d) Atracurium

Correct Answer - C

LONG-ACTING NEUROMUSCULAR BLOCKERS: Pancuronium is cleared largely by the kidney.

Its hepatic uptake is limited. A small amount (15% to 20%) is deacetylated at the 3-position in the liver, but this makes a minimal contribution to the total clearance.

Deacetylation also occurs at the 17-position, but to such a small extent that it is clinically irrelevant.

The three known metabolites have been studied individually in anesthetized humans.

The 3-OH metabolite is the most potent of the three, being approximately half as potent as pancuronium, and is the only one present in detectable concentrations in plasma.

This metabolite has pharmacokinetics and a duration of action similar to those of pancuronium

Ref: Miller's anesthesia-7th ed , Chapter 29.

728. Heavy smoker for elective hernia repair, smoking should be stopped before how much period?

a) 4 days

b) 10 days

c) 3-4 weeks

d) 6-8 weeks

Correct Answer - D

Ans. is 'd' i.e., 6-8 weeks

Ref: Postgraduate anaesthesia p. 786

- **'Limited prospective data suggest that cessation for at least 6-8 weeks preoperative is necessary to decrease the incidence of pulmonary complication.'**

729. Maintenance of anaesthesia in 70 yr male for surgery duration 4-6 hrs should ideally include?

a) O₂ + Air + Isoflurane + Pancuronium + Morphine

b) O₂ + Air + Sevoflurane + Pancuronium + Remifentanyl

c) O₂ + Air + Halothane + Vecuronium + Morphine

d) O₂ + Air + Desflurane + Atracurium + Remifentanyl

Correct Answer - D

Ans. is 'd' i.e., O₂ + Air + Desflurane + Atracurium + Remifentanyl

Ref.: Miller's Anesthesiology 7th ed chap. 7

- **Table 71-7, Chap. 28; Stoelting's Anesthesia and Co-Existing Disease 7th ed chap. 251**

730. Which of the following anaesthetic agent also has anti-emetic property:
September 2006

a) Ketamine

b) Thiopentone

c) Propofol

d) Nitrous oxide

Correct Answer - C

Ans. C: Propofol

Anaesthetics with anti-emetic property:

- **Midazolam given at the onset of anaesthesia has been shown in to be as effective as ondansetron**
- **Propofol is versatile; the drug can be given for short or prolonged sedation as well as for general anaesthesia. It is an anti-emetic.**

731. A five-year old child is scheduled for strabismus (squint) correction. Induction of anesthesia is uneventful. After conjunctival incision as the surgeon grasps the medial rectus, the anaesthesiologist looks at the cardiac monitor.

Why do you think he did that?

a) He wanted to check the depth of anaesthesia

b) He wanted to be sure that the blood pressure did not fall

c) He wanted to see if there was an oculocardiac reflex

d) He wanted to make sure there were no ventricular dysarrhythmias which normally accompany incision

Correct Answer - C

C i.e. Wanted to see if there was an oculocardial reflex

- Traction on extraocular muscles or pressure on eye ball can elicit cardiac dysrhythmias, ranging from bradycardia to sinus arrest. This reflex consists of trigeminal afferent and vagal efferent pathway. It is most common in pediatrics undergoing strabismus surgery.

- It can be evoked in cataract extraction, enucleation and retinal detachment repair also.

It is treated by temporary cessation of surgery until heart rate increases intravenous atropine 10mg/kg

rate increases intravenous atropine 1mg/kg.

732. Which of the following drug is used in CPR?

a) Atropine

b) Amiodarone

c) Procainamide

d) Phenylephrine

Correct Answer - B

Ans. is'b'i.e., Amiodarone

[Ref: AHA Guidelines For CPR 6 ECCSC 2010 ; 122:5685-570, Highlights of AHA. Guidelines for CPR & ECC- American Heart Association 2010, Objective Anaesthesia Review Course 3'd/e p. 417, 418.]

- **ImPortant drug used in CPR are epinephrine, amiodarone, lidocaine, MgSO₄, sodium bicarbonate and calcium gluconate**
- **The routine use of Atropine for PEA (pulseless Electrical Activity & asystole has no therapeutic benefit.**
- **Hence, Atropine has been removed from the cardiac arrest algorithm**

733. During resuscitation, fractured ribs most commonly involve:

a) 2nd –4th ribs

b) 3rd –5th ribs

c) 4th –6th ribs

d) 5th –7th ribs

Correct Answer - C

Ans. c. 4th — 6th ribs

Reasonable conclusions to be drawn from the literature in relation to rib fractures in adults

- Rib fractures following CPR in adults are quite common - 30 to 60% of prospective post-mortem studies.
- Post-CPR rib fractures are often bilateral.
- The site of rib fracture is dependent on: the position of the hands; force used; and method of chest compression (manual or device-assisted).
- *The vast majority (90%+) of fractures occur in ribs 2 to 7; fractures in the bony parts of rib numbers 1 and 8 to 10 are possible but probably very rare; it is difficult to see how fractures can occur in rib numbers 11 and 12 following standard manual CPR.*
- The vast majority of fractures (90%+) occur in the anterior third of the bony part of the rib, some occur in the middle third but - following standard manual CPR - none in the posterior third of the bony part of the rib.
- Posterior rib fractures occur following automated band-

type CPR.

- **Lateral fractures i.e. those occurring between the anterior and posterior axillary lines, do occur after standard CPR. If a fracture is noted in rib numbers 10 to 12 or in the posterior third of the bony part of a rib, then non-resuscitation trauma should be suspected.**
- **Chest x-ray is unreliable as a diagnostic tool for detecting rib fractures.**
- **CT is better than x-ray and may complement the post-mortem detection of rib fractures.**

Fractures are more common

- **On the left side of the chest**
- **With increasing age of the patient**
- **In females**
- **With increasing length of time of resuscitation attempts**
- **Following the involvement of untrained persons**
- **With the use of ACD-CPR**

734. Which of the following should be the ventilator settings for tidal volume in a patient with ARDS?

a) Tidal volume 10-12 ml/kg

b) Tidal volume 8-10 ml/kg

c) Tidal volume 5-7 ml/kg

d) Tidal volume 4 ml/kg

Correct Answer - C

Ans. is 'c' i.e., Tidal Volume 5-7 ml/kg

[Ref Miller's Anaesthesiologist 7/e chap. 91; Journal of Thoracic disease 2013 Issue 5 (3) p. 323-334]

- **"Patients with acute lung injury or acute respiratory distress syndrome should be mechanically ventilated with tidal volumes of 6 mL/kg of ideal body weight.**

735. The first drug used as local anaesthetic is ?

a) Cocaine

b) Prilocaine

c) Procaine

d) Lidocaine

Correct Answer - A

Ans. is 'a' i.e., Cocaine

[Ref: Ajay yadav 4e/e p. 118]

- **Cocaine was the first local anaesthetic used by Carl Koller. It was used for anaesthetizing cornea.**

736. Repeated use of halothane causes

a) Hepatitis

b) Pancreatitis

c) Encephalitis

d) Meningitis

Correct Answer - A

A i.e. Hepatitis

Halothane causes two types of hepatotoxicity:

Type 1 Hepatotoxicity:

its mild form with transient elevation of serum transaminases.

Incidence after halothane administration is 20-30%,

2) Type 2 Hepatotoxicity (Halothane hepatitis):

It is severe form and is characterized by centrilobular necrosis.

It is very rare with incidence of approximately 1: 35, (NO, Mortality rate is 30-70%.

737. Most commonly used local anaesthetics ?

a) Dibucaine

b) Bupivacaine

c) Prilocaine

d) Tetracaine

Correct Answer - B

Ans. is 'b' i.e., Bupivacaine

Bupivacaine

- **Bupivacaine is 2nd most commonly used local anaesthetic (after lidocaine).**
- **Bupivacaine has the highest local tissue irritancy amongst local anaesthetics.**
- **It is the most cardiotoxic local anaesthetic.**
- ***Levobupivacaine* (The S(-) enantiomer of bupivacaine) is less cardiotoxic and less prone to cause seizure.**
- **Concentrations used for bupivacaine are : - Nerve block : 0.5%, Epidural : 0.25 - 0.5 %, and spinal : 0.5%.**
- **Maximum safe dose is 2 mg/kg without adrenaline and 3mg/kg with epinephrine**

738. Percentage of Halothane metabolized ?

a) 1%

b) 5%

c) 10%

d) 20%

Correct Answer - D

Ans. is 'd' i.e., 20% [Ref: Essentials of anaesthesiology p. 65]

- **Most of the inhaled anaesthetics are eliminated from lung though some metabolism in liver may occur. In terms of extent of hepatic metabolism, the rank of order is methoxyflurane (> 50%) > Halothane (20%) > Ether (10-15%) > enflurane (3-5%) desflurane (< 0.1%) > N₂O (0%). N₂O does not have any metabolism in the body.**

739. Which one of the following inhalational anesthetics is most likely to cause fluoride ion nephrotoxicity ?

a) Methoxyflurane

b) Enflurane

c) Halothane

d) Isoflurane

Correct Answer - A

Ans. is 'a' i.e., Methoxyflurane

o Intrarenal metabolism of methoxyflurane and subsequent intrarenal production of fluoride ion is the significant cause of methoxyflurane renal toxicity.

740. Sequence of CPR is?

a) Basic CPR, ACLS, Defibrillation

b) Basic CPR, Defibrillation, ACLS

c) ACLS, Basic CPR, Defibrillation

d) Defibrillation, ACLS, Basis CPR

Correct Answer - B

Ans. is'b'i.e., Basic CP & Defibrillation, ACLS

- **Ref: 2010 International Consensus on Cardiopulmonary Resuscitation and Emergency Cardiovascular Care Science with Treatment Recommendations (CoSTR)**
- **Sequence Is : Basic life support (BLS) → Defibrillation -+ Advanced cardiac life support (ACIS).**

741. Radiological hallmark of primary tuberculosis in childhood is?

a) Ghon's focus

b) Normal chest Xray

c) Lymphadenopathy

d) Pleural effusion

Correct Answer - C

Ans. is 'c' i.e., Lymphadenopathy

**[Rel Diagnostic radiology paediatric imaging by A.K. Gupta
p. 78]**

- **Lymphadenopathy with or without parenchymal abnormality is the radiological hallmark of primary tuberculosis in childhood.**

742. Egg Shell Calcification" in chest X ray is seen in?

a) Silicosis

b) Sarcoidosis

c) Treated Lymphoma

d) All above

Correct Answer - D

All above REF: Chapman 4th ed p. 148

EGG SHELL CALCIFICATION:

- Silicosis
- Pneumoconiosis
- Sarcoidosis
- Lymphoma following radiotherapy
- TB, Histoplasmosis, Blastomycosis
- Amyloidosis

743. Christmas tree appearance of urinary bladder is seen in

a) Neurogenic bladder

b) Stress incontinence

c) Autonomous bladder

d) Enuresis

Correct Answer - A

Ans. is 'a' i.e., Neurogenic bladder

- ***Christmas tree appearance of the bladder is seen in neurogenic bladder caused by detrusor hyperreflexia.***
- ***Detrusor hyperreflexia is caused by lesions of the spinal cord above the sacral segments but below the pons. Such patients have no perception of bladder filling or emptying and voluntary voiding is not possible.***
- ***Voiding when it does occur is involuntary with simultaneous contractions of the detrusor and external sphincter muscles.***
- ***Common neurological condition resulting in detrusor hyperreflexia include***
- ***Multiple sclerosis***
- ***Myelodysplasia,***
- ***Spinal cord trauma***
- ***Spinal cord tumours,***
- ***A-V malformation not the spinal cord***
- ***Radiologically, patients with long terms untreated detrusor hyperreflexia have characteristic changes of the urinary***

tact.

- ***Bladder is vertically oriented, with an irregular contours, consistent with trabeculation. There are frequently multipel diverticula, Such a bladder is referred to as a christmas tree.***

	Automatic bladder	Autonomous bladder
<i>Lesion site</i>	Above T5 or higher	Cauda equina damage / lower motero neuron
<i>Manifestation</i>	Small spastic bladder	damage Large flaccid bladder
<i>Why this name</i>	urge comes again and again due to repeated contractions and hence empties repeatedly after some time	Has no urge sensation and continuous <u>DRIBBLING</u> occurs, So it is like the bladder is working all the time but <u>Brain has no control over it</u> and hence called autonomous bladder
<i>Radiological data</i>	Christmas tree appearance	No VUR but still bladder is large and holds lots of residual urine

744. Which is the investigation of choice for recurrent sinusitis?

a) MRI

b) CT scan

c) X-ray PNS Waters view

d) X-ray PNS Cadwells view

Correct Answer - B

Ans. is'b'i.e., CT scan

[Ref : Sutton //e vol. 2 p. 1521; Grainger Sth/e Ch. 62]

- **CT scan is the investigation of choice for recurrent sinusitis.**

745. Which of the following is not seen in coronal CT paranasal sinuses?

a) Osteomeatal complex

b) Orbit

c) Sinus cavities

d) Frontoethmoid recess

Correct Answer - D

Ans. is'd'i.e., Frontoethmoid recess

[Ref : Sutton Vh/e vol. 2 p. 1519-1522; Grainger Sth/e Ch. 62]

- **Structures seen on coronal view of CT paranasal sinus are Nasal cavity, osteomeatal complex, Sinus cavities and surrounding structures like orbit, cribriform plate and optic canal.**
- **Frontoethmoidal recess is evaluated by parasagittal view.**

746. Which is the best investigation for assessing the plaque of atherosclerosis?

a) CT scan

b) MRI

c) Angiography

d) Intravascular USG

Correct Answer - B

Ans. is 'b' i.e., MRI

[Rel Textbook of cardiac imaging p. 292)

- **"MRI is emerging as the most promising radiological technique for assessing plaque morphology (particularly aortic and carotid plaques) since its superior capability to determine plaque size and composition with accuracy and reproducibility provides the opportunity to evaluate the relationship between plaque morphology/composition and subsequent cardiovascular event.**

747. Signet ring sign is seen in:
March 2013

a) Blastomycosis

b) Bronchogenic carcinoma

c) Invasive aspergillosis

d) Bronchiectasis

Correct Answer - D

Ans. D i.e. Bronchiectasis

Signet ring sign

- **The signet ring sign is a CT finding seen in patients with Bronchiectasis**
- **The ring of soft-tissue attenuation represents the wall of the dilated bronchus seen on a cross-sectional CT scan, whereas the low-attenuating circle of air represents air within the dilated bronchus.**
- **The circle of soft-tissue attenuation abutting the ring represents a cross-sectional image of the pulmonary artery that lies adjacent to the dilated bronchus.**

748. Best investigation of planning radiotherapy for carcinoma of esophagus?

a) PET

b) CT Scan

c) USG

d) MRI

Correct Answer - A

Ans. is'a'i.e., PET

[Ref: Recent advances in GT oncologist p. 21]

- **Prior to radiotherapy, the extent of tumor and its spread is assessed to target the area for radiotherapy.**
- **CT scan, endoscopic USG and FDG-PET are used for esophageal carcinoma, but for accurate radiotherapy planning PET scan is far superior to CT or endoscopic USG.**

749. Which of the following is used to differentiate tumour recurrence and radiation necrosis?

a) PET scan

b) MRI

c) 3D CT

d) USG

Correct Answer - A

Ans. is 'a' i.e., PET scan

[Ref.: Devita oncology 6h/ e Ch. 24]

- **PET may be used in therapeutic monitoring after chemotherapy or radiotherapy, with a classic indication being assessment for recurrent tumor versus radiation necrosis.**
- **Conventional imaging can not differentiate recurrent tumor from radiation necrosis.**

750. Best investigation for VUR is ?

a) IVU

b) MCU

c) Retrograde pyelogram

d) Retrograde urethrogram

Correct Answer - B

Ans. is 'b' i.e., MCU

[Re/ Clinical radiology 3'd/e p. 252]

- **Investigation of choice for VUR > Voiding/micturating cystourethrogram.**

751. Size of liver metastasis that can be detected by CECT is?

a) 1 mm

b) 5 mm

c) 1 cm

d) 2 cm

Correct Answer - B

Ans. is 'b' i.e., 5 mm

[ref: Adam and Dixon Sth/e Ch. 35]

- **CECT can detect lesions of size upto 5mm but it is difficult to differentiate benign from malignant.**

752. Which is the investigation of choice for fat embolism?

a) CT scan

b) MRI

c) Arterial blood gas analysis

d) Chest x-ray

Correct Answer - A

Ans. is 'a' i.e., CT scan

[Ref; With text Textbook of Orthopaedics By Iohn Ebnezar 4'h/e p. 32]

- **In case of ARDS due to fat embolism the investigation of choice is spiral CT pulmonary angiogram,**

753. Isotope used for RAIU is ?

a) I-123

b) I-137

c) I-125

d) None

Correct Answer - A

Ans. is 'a' i.e., I-123

[Ref: Essential of thyroid cancer management p. 50]

- **Radio-active iodine uptake (RAIU) test is used to measure thyroid function.**
- **Usual isotope of radioiodine used is I-123.**

754. All are true about transvaginal USG except ?

a) Bladder should be full

b) Bladder should be empty

c) Consent is mandatory

d) None of the above

Correct Answer - A

Ans. is'a'i.e., Bladder should be full

[Ref: USG in obstetrics and Gynaecology p. 76]

- **Transvaginal sonography is best performed with an empty bladder, which enables the pelvic organs to reach a closer proximity to the tip of the high-frequency transvaginal probe.**
- **On the other hand, transabdominal sonography is done with full bladder to get an overview of anatomy.**

755. Prunning of Pulmonary arteries is seen in:

a) Pulmonary hypertension

b) Chronic Bronchitis

c) Pulmonary infections

d) Pulmonary transplant

Correct Answer - A

A i.e. Pulmonary hypertension

Pulmonary arterial hypertension is characterized by *pruning of peripheral pulmonary arteries* (i.e. *disproportionate increase in caliber of fibrous central arteries from sustained increase in PBF with a decrease in caliber of small muscular/peripheral arteries*).

Pulmonary (Arterial) Hypertension (PAH)

It is defined as an elevation in *mean pulmonary arterial pressure* above 30mmHg during exercise and above 25mmHg at rest in systole. An increase in PAH most commonly occurs as a result of *intrinsic lung disease, which results in an increase in pulmonary vascular resistance* and subsequent *increase in PA pressure*. PAP can also increase as a result of an *increase in pulmonary venous pressure* (which may be due to impaired left ventricle function or obstruction to left sided cardiac flow eg MS etc). So radiological features may be slightly different depending on cause i.e. pulmonary arterial or pulmonary venous hypertension. Radiological features of PAH

include.

Vascular Signs

- Enlargement of central pulmonary arteries (*main pulmonary artery & its branches down to the segmental level*) and *tapering of peripheral arterial branches (vessels beyond segmental level)*-termed *pruning* are seen
- Enlargement of central main pulmonary artery may be extremely large with *complete infilling of pulmonary artery/ventricular concavity of left heart border on X-ray.*
- Widest diameter of main pulmonary artery (MPA) 29mm measured on transverse section (CT) at level of PA bifurcation has 90% sensitivity & specificity
- Diameter ratio of MPA to ascending aorta (measured at same level) >1 i.e. diameter of MPA $>$ AA has strong correlation in
- Transverse diameter of right descending pulmonary artery at midpoint >17 mm (Grainger); diameter of left and right pulmonary artery >16 mm (Wolfgang); maximum diameter of descending branch of pulmonary artery (measured 1cm medial & 1 cm lateral to hilar points) >16 mm for males & >15 mm for females (Sutton)
- Pulmonary arteries within lungs are enlarged but there is rapid tapering of vessels (beyond segmental level) as they run towards the periphery. The important feature is discrepancy between central and peripheral vessel size, central pulmonary arteries being large or near normal sometimes and peripheral arteries disproportionately small (pruning or tapering). - Vascular complications include *sub pleural pulmonary infarct*, dissection & calcified plaques of central pulmonary arteries (pathognomic, a feature not seen in nonhypertensive pulmonary arteries; is often *curvilinear & egg shape calcification* mimicking enlarged lymph nodes, from which it is differentiated by *absence of lobulation and presence of smooth border*). - Pulmonary veins are *small in pre capillary pulmonary hypertension whereas enlarged in*

post capillary causes.

Mediastinal & Cardiac Signs

- ***Cardiac enlargement (right heart i.e. RA and RV enlargement & hypertrophy)*** demonstrating a large, triangular heart.

- ***Mild pericardial thickening & effusion.***

- ***Dilatation of IVC, coronary sinus & SVC (On MRI/CT)***

Lung Parenchymal Signs - *Mosaic perfusion without dilatation of bronchi*

(increase in vessel diameter in areas of hyper attenuation & tapering of peripheral vessels in areas of hypo attenuation)

756. Diffuse esophageal spasm is best diagnosed by

a) Endoscopy

b) Manometry

c) Barium swallow

d) CT

Correct Answer - B

Answer is B (Manometry)

Diffuse oesophageal spasm is a type of oesophageal motility disorder. Diffuse esophageal spasm disorders are best diagnosed by Manometry studies

'Esophageal manometry is the key test for establishing the diagnosis of diffuse esophageal spasm' – CSDT

'Esophageal manometry is the only test that distinguishes diffuse esophageal spasm from other primary esophageal motor disorders.'

Diffuse Esophageal spasm:

Diffuse Esophageal spasm is a poorly understood hypermotility disorder

Presentation

- Symptoms are aggravated by emotional stress, exertion (or relaxation)

Diagnosis

Manometry is the key to establish the diagnosis

The diagnosis is usually made by an esophagogram (Barium swallow study)

Esophagogram

Manometry

- *Corkscrew esophagus is classical of Diffuse esophageal spasm (seen in about 30% of cases) (Radiological evidence of tertiary contractions)*
- *Esophageal manometry is the only test that distinguishes diffuse esophageal spasm from other primary esophageal motor disorders - CSDT preferred over standard manometry as contractions are intermittent and normal peristalsis is seen in between. Ambulatory manometry is the single best investigation with a sensitivity of 90% and specificity of 100%*

Note Though diffuse esophageal spasm is best seen on barium swallow, it is often misdiagnosed by esophageal manometry.

o That means:-

- Best investigation for visualization of diffuse esophageal spasm**
- Investigation of choice for diagnosis of diffuse esophageal spasm**

757. CT in EDH shows ?

a) Hyperdense lesions

b) Crescent shaped

c) Concavo-convex

d) None

Correct Answer - A

Ans. is'a'i.e., Hyperdense lesions

[Ref Clinical radiology p. 212]

- **Acute extradural (epidural) hematoma is biconvex hyperdense or mixed density lesion.**

758. Bone and soft tissue radiology, most important interaction?

a) Compton scattering

b) Thompson scattering

c) Photoelectric absorption

d) Coherent scatter

Correct Answer - A

Ans. is 'a' i.e., Compton scattering

[Ref: Fundamental Radiology 33]

- **Compton scattering is the most common type of interaction in diagnostic radiology and is responsible for most scattered radiations.**

759. Drugs which cause both physical and psychological dependence are ?

a) Opioids

b) Alcohol

c) Nicotine

d) All the above

Correct Answer - D

Ans. is 'd' i.e., All the above

[Ref Niraj Ahuja 6'h/e p. 37; Essential of clinical psychiatry 4'h/e p. 247)

760. Opioid dependence produces ?

a) Physical dependence

b) Psychological dependence

c) Both a and b

d) None of the above

Correct Answer - C
Ans. is 'c' i.e., Both a and b

761. The term "Dementia precox" was coined by

a) Freud

b) Bleuler

c) Kraepelin

d) Schneider

Correct Answer - C

C i.e., Kraepelin

- 1. Benedict Morel used term *démence précoce* (in french) for deteriorated patients whose illness began in adolescence.**
- 2. Emil Kraepelin translated it into *dementia. Praecox* i.e. dementia = deteriorated cognitive process & precox = early onset**
- 3. Eugen Bleuler coined term *schizophrenia***
- 4. Kahlbaum described *catatonia*, Hacker described *hebephrenia***

**762. Erotomania is seen
in:
*NEET 13***

a) Bipolar mania

b) Unipolar mania

c) Neurosis

d) Obsessive compulsive disorder

**Correct Answer - A
Ans. Bipolar mania**

763. Which of the following neurotransmitters are decreased in alzheimers disease?

a) Acetylcholine

b) Norepinephrine

c) Corticotropin

d) All the above

Correct Answer - D

Ans. is 'd' i.e., All the above

- **Ref - Niraj Ahuja & e p. 25; Dementia by Brown and Hilhn like p. 60]**

Neurotransmitters in Alzheimer's disease:

- **Acetylcholine has a major role in memory functions and deficiency in cholinergic functioning is associated with memory disturbances particularly short term memory.**
- **In Alzheimer's disease there loss of cells in the nucleus basalis of meyer net results in marked reduction in choline acetyltransferase (CHAT), an enzyme involved in the synthesis of acetylcholine + Decreased Acetylcholine.**

764. Amotivational syndrome is seen with:

Maharashtra 10; NEET 13

a) Heroin

b) Cannabis

c) Cocaine

d) Clonidine

Correct Answer - B
Ans. Cannabis

765. Kleine Levin syndrome which of the following is not true ?

a) Hyper somnia

b) Hyposexuality

c) Spontaneous resolution

d) Also called sleeping beauty syndrome

Correct Answer - B

Ans. is 'b' i.e., Hyposexuality

Ref: NORD guide to rare disorders p.544

Kleine-Levin syndrome (KLS):

- **It is also known as "Sleeping Beauty syndrome".**
- **it is a rare sleep disorder characterized by persistent episodic hypersomnia and**
- **cognitive or mood changes.**
- **Many patients also experience hyperphagia, hypersexuality and other symptoms.**

766. Features of serotonin syndrome associated with SSRI & MAOIs are :

a) Tremors

b) Agitation

c) Cardiovascular collapse

d) All

Correct Answer - D

A, B, C i.e. Tremors, Agitation, Cardiovascular collapse

**767. Defense mechanism in phobia
is:**

a) Sublimation

b) Displacement

c) Substitution

d) Projection

**Correct Answer - B
Displacement**

768. Typical change in problem behavior shows how many stages ?

a) 2

b) 3

c) 4

d) 5

Correct Answer - D

Ans. is'd'i.e., 5

Ref: www.uri.edu.com

Five stages of change for problem behaviour

- **Precontemplation :- Individuals are unaware of their problem.**
- **Contemplation :- Individuals are aware about problem and seriously thinking about overcoming it but have not yet made a**
- **commitment. Person is weighing benefits and costs of behaviour, proposed change.**
- **Preparation :- Individuals are intending to take action and have unsuccessfully taken action in the past year.**
- **Action:- Individuals modify their behaviour, experiences and environment to overcome their problem.**
- **Maintenance:- Individuals work to prevent relapse.**

769. Treatment of malignant Hyperthermia includes:

a) Dantrolene

b) Cooling

c) Deepening plane of inhalational anaesthesia

d) a and b

Correct Answer - D
A.i.e. Dantrolene; B. i.e. Cooling

770. Effects of long term Levodopa therapy are

a) Facial tics

b) Nightmares

c) End of dose effect

d) All the above

Correct Answer - D

Ans. is'd'i.e., All the above

[Rel KDT //e p. a29

Adverse effects after prolonged use of levodopa are :-

- **Abnormal movements : Facial tics, grimacing, choreoathetosis.**
- **Behavioral effects : Amiety, nightmares, depression, mania, hallucination, true psychosis.**
- **Fluctuation in motor performance : wearing off and on-off effect.**

771. Differentiating feature for dementia and delirium is -

a) Apraxia

b) Loss of memory

c) Impaired consciousness

d) None

Correct Answer - C

Ans. is 'c' i.e., Impaired consciousness

**772. Classic tetrad of narcolepsy includes all, except:
CMC (Vellore) 07; NIMHANS 08;
Kerala 11; NEET 13; PGI 14**

a) Hypnagogic hallucination

b) Sleep attacks

c) Sleep paralysis

d) Catalepsy

**Correct Answer - D
Ans. Catalepsy**

773. OCD Rx of choice -

a) Fluoxetine

b) Imipramine

c) Diazepam

d) None

Correct Answer - A

Ans. is 'a' i.e., Fluoxetine

SSRIs are drug of choice for ?

- OCD
- Panic disorder
- Premenstrual dysphoric disorder
- Eating disorders
- Depression
- Social phobia
- Post traumatic stress disorder

774. Fregoli's Syndrome is?

a) Delusion of Doubles

b) Delusion of persecution

c) Delusion of twins

d) Delusion of parasites

Correct Answer - A

Ans. is'a'i.e., Delusion of Doubles

[Ref.: Kaplan 6 Saddock IF/e Chap. 14

- **The Fregoli delusion, or the delusion of doubles, is a rare disorder in which a person holds a delusional belief that different people are in fact a single person who changes appearance or is in disguise.**

775. An antiepileptic drug was found successful for treatment of tonic hind limb extension (THLE). It can be used in?

a) Absent seizures

b) General tonic clonic seizure

c) Myoclonic seizure

d) Status epilepticus

Correct Answer - B

Ans. is 'b' i.e., General tonic clonic seizure

Ref; Neuropharmacology Methods in Epilepsy Research edited

- **by Steven L. Peterson, Timothy E. Alhertson p. 91**
- **By far the most frequently used endpoint in the quantification of tonic clonic convulsion is tonic hindlimb extension (THLE).**
- **Other methods for quantifying tonic clonic seizures are typically used only when THLE can not be reliably induced.**

776. A child with schizophrenia was on medications. Suddenly he developed neck stiffness & spasm. What is most probable cause?

a) Conversion disorder

b) Acute dystonia

c) Akathisia

d) Tardive dyskinesia

Correct Answer - B

Ans. is'b'i.e., Acute dystonia

[Ref: Kaplan & sadock's p 992

777. Phototherapy was first used for :

a) Dementia

b) Mental retardation

c) Agoraphobia

d) Seasonal Mood disorder

Correct Answer - D

Ans. is 'd' i.e., Seasonal Mood disorder

Ref.: Kaplan 6 Sadock's e p. 557

- **Phototherapy was first used for seasonal mood disorder (seasonal depression).**

778. Functional disorder is?

a) Fugue

b) Conversion

c) Hypochondriasis

d) All of above

Correct Answer - D

Ans. is 'd' i.e., All of above

Functional Neurological Disorder

- ***Transformation of inner psychological conflict into physical symptoms***

Two types

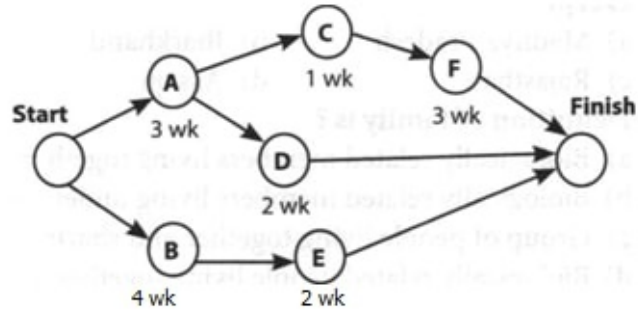
- **Somatoform**
 - **Dissociative**
- Somatoform disorder include?**

- **Conversion**
- **Somatization**
- **Pain disorder**
- **Hypochondriasis**
- **Body dysmorphic disorder**

Dissociative disorder - include?

- **Dissociative amnesia**
- **Fugue**
- **They are often associated with co-morbid mood & anxiety disorder**

779. Which of the following is the critical path in the picture shown below?



a) A, C, F

b) A, D

c) B, E

d) Both A and B

Correct Answer - A

Ans. is 'a' i.e., A, C, F [Ref Park 22ndle p. 815]

- **Critical path is the longest path.**
- **In the figure the longest path is A → C → F (taking 7 weeks in total).**

780. Abdominal Xray of Patient with Acute Abdominal Pain Shows the Following Picture. Most Probable Diagnosis ?



a) Intussusception

b) Sigmoid volvulus

c) Small bowel obstruction

d) Large bowel obstruction

Correct Answer - C

Ans. C. Small bowel obstruction

- **"String of beads" appearance on horizontal abdominal view X-ray is suggestive of small bowel obstruction**

invalid question id