1. Muscle's of anterior compartment of leg is/ are:

a) Peroneus tertius

b) Peroneus brevis

c) Peroneuslongus

d) Flexordigitorumlongus

e) Flexor hallucis longus

Correct Answer - A

Ans. (a) Peroneus tertius

- The 4 muscles in the anterior compartment of the leg are- the tibialis anterior, extensor digitorum longus, extensor hallucis longus, and fibularis(Peroneus) tertius

2. Not TRUE statement regarding parotid gland is/are?

a) Deep lobe contains deep lymphatics

b) Divided into superficial and deep lobes by facial nerve

c) Parotid duct opens opposite to the second upper molar

d) Ectodermal in origin

e) Auriculotemporal nerve is the main sensory nerve

Correct Answer - A

Ans. is 'a' i.e., Deep lobe contains deep lymphatics

Development:

- Parotid gland is the first salivary gland to appear, in early 6' week.
- It is ectodermal in origin and develops from the buccal epithelium just lateral to the angle of mouth

Structures emerging from parotid

The following structures emerge from the parotid gland:

Anterior border:

- Parotid duct

3 Terminal branches of facial nerve:

- The zygomatic and buccal branches: toward the temporal region, eyelids and cheek, respectively.
- Mandibular branch : Run along the body of the mandibletowards the mouth

Apex:

- 5th terminal branch of facial nerve: Cervical branch continues into the neck (to platysma).
- Anterior & posterior divisions of retromandibular vein

Posterior border:

- Posterior auricular nerve
- Posterior auricular artery
- Posterior auricular vein

Along base:

- superficial temporal artery
- temporal branch of facial nerve
- Auriculotemporal nerve

STRUCTURES WITHIN GLAND:

Arteries:

- External carotid artery enters through posteromedial surface
- Maxillary artery
- Superficial temporal vessel
- Posterior auricular artery

Veins:

- The retromandibular veins

Facial Nerve

Parotid Duct (Stenson's duct)

- The duct turns opens into the vestibule of the mouth (gingivo- buccal vestibule) opposite the crown of the upper 2nd molar tooth

Nerve supply:

- **PARASYMPATHETIC:auriculo temporal nerve**
- **SYMPTHETIC SUPPLY-** plexus around the external carotid artery.
- **SENSORY NERVES: auriculotemporal nerve**, except for parotid fascia & overlying skin which are innervated by **Great auricular nerve (C2, C3).**

3. True about trochlear nerve:

a) Arise from ventral aspect of brainstem

b) Enters orbit through annulus of Zinn

c) Lesion causes diplopia

d) Nucleus of the trochlear nerve is located in the caudal mesencephalon beneath the cerebral aqueduct

e) Damage causes ipsilateral palsy of superior oblique muscle

Correct Answer - C:D

Ans. (c) Lesion causes diplopia, (d) Nucleus of the trochlear nerve is located in the caudal mesencephalon

The trochlear nerve has certain unique features:

- It is the only cranial nerve whose fibers originate totally from the contralateral nucleus.
- It is the only cranial nerve to emerge from the dorsal surface of the brain stem.
- It is the most slender of all the cranial nerves.
- It has the longest intradural course among the three extraocular motor nerves.
- It supplies only one muscle i.e. superior oblique (Abducent cranial nerve also supplies only one muscle i.e. Lateral rectus).

4. True regarding thyroid gland is –

a) Deep investing layer form Berry ligament

b) Condensed fibrous part of gland form true capsule

c) Superior thyroid artery lies posterolateral to superior laryngeal nerve

d) Recurrent laryngeal nerve has variable course on both sides

e) Supplied by Thyrocervical Trunk

Correct Answer - B:E

Ans. Ans. is 'b' i.e., Condensed fibrous part of gland form true capsule; 'e' i.e., Supplied by Thyrocervical Trunk

Thyroid gland has two capsule :-

. True capsule - peripheral condensation of the connective tissue of the gland.

. False capsule - derived from the pretracheal layer of the deep cervical fascia. It also forms the suspensory ligament of Berry which connects the lobe to the cricoid cartilage.

. Ligament of berry and false capsule are derived from pretracheal layer of deep cervical fascia (not investing layer).

- Superior thyroid artery is related to external laryngeal nerve (external branch of superior laryngeal nerve), but not directly related to superior laryngeal nerve itself
- Recurrent laryngeal nerve has variable relation to inferior thyroid artery only on right side, on left side it has consistent relation

Blood supply of thyroid gland is through :

- Superior thyroid artery - Branch of external carotid artery
- Inferior thyroid artery - Branch of Thyrocervical trunk
- Thyroidea ima artery - From the brachiocephalic trunk or arch of

aorta

5. Correct statement[s] regarding the anatomy of vertebrae are –

a) C7 has no foramen transversarium

b) C6 has prominent lateral mass

c) T3 has smallest spinous process

d) T12 has large costal facet

e) T7 has vertically oriented articular process

Correct Answer - E

Ans. e) T7 has vertically oriented articular process

- C7 has foramen transversarium, but it does not transmits vertebral artery (unlike foramina transversaria of C1 to C6)
- Lateral mass is seen in C1 (not in C6)
- Thoracic vertebrae (including T3) have long spinous process.
- Small spinous processes are seen in cervical vertebrae (except for C7).
- T11 & T12 do not have costal facets
- T2-79 are typical thoracic vertebrae and 71, TI0, 711, 712 are atpical thoracic vertebrae
- In typical thoracic vertebrae Articular processes are vertically placed and interlocked; So dislocation can only occur if they are fractured.

6. Upper eyelid has following layer[s]-

a) Orbicularis oculi

b) Adipose tissue

c) Loose connective tissue

d) Levator palpebrae superioris

e) Muller muscles

Correct Answer - A:C:D:E

Ans. is'a'i.e., Orbicularis oculi;'c'i.e., Loose connective tissue;'d'i.e., Levator palpebrae superiors;'e'i.e., Muller muscles

Layers of eyelid :

Each lid is made up of (from without inwards)

- Skin
- Subcutaneous areolar tissue: Layer of loose areolar connective tissue, without any fat.
- Layer of striated muscles: Orbicularis oculi muscle ; In upper eyelid levator palpebrae superioris
- Submuscular areolar tissue :Nerves and vessels of the lids lie in this layer
- Fibrous layer: It is the framework of the lids and consists of :

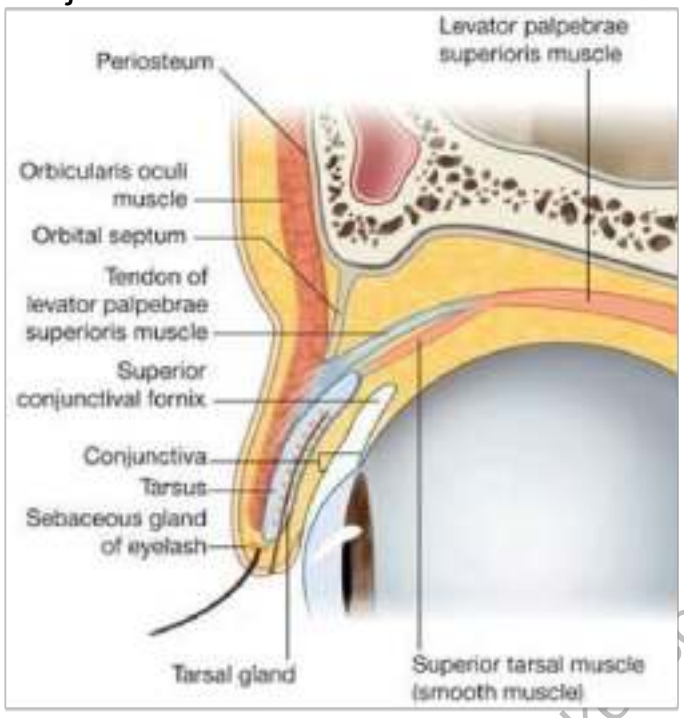
. Tarsal plates: Tarsi form the skeleton of eyelids. Septum orbitale and Muller's muscle are attached to superior border of Upper tarsus. Orbital septum, capsulopalpebaral fascia and inferior palpebral muscle are attached to inferior border of lower tarsus. Tarial glands (meibomian glands) are embedded in the posterior surface of tarsi.

. Septum orbitale (palpebral fascia): It is a thin, floating membrane

which takes part in all movements of eyelids' .

Medial and lateral palpebral ligaments.

- Layers of non-striated muscle fibres: This layer consists of smooth muscle fibers of muller muscles.
- Conjunctiva



7. Branch [es] of ophthalmic artery is /are-

a) Central artery of retina

b) Supratrochlear artery

c) Anterior ethmoidal artery

d) Posterior ethmoidal artery

e) Posterior articular artery

Correct Answer - A:B:C:D

Ans.. is.a, i.e., Central artery of retina,'b'i.e., Supratrochlear artery ,'c' i.e., Anterior ethmoidal artery 'd'i.e., Posterior ethmoidal

Ophthalmic artery

It gives following branches :-

- Central artery of retina (end artery)

Lacrimal artery :- It gives following branches

- Lateral Palpebral branch.
- Zygomaticotemporal
- Zygomaticofacial
- Recurrent meningeal
- Meningeal
- Ciliary
- Anterior ethmoidal-Supplies anterior ethmoidal sinus
- Posterior ethmoidal
- Medial Palpebral
- Supratrochlear
- Supraorbital
- Dorsal nasal

8. Blood supply of optic tract comes through

a) Middle cerebral artery

b) Anterior cerebral artery

c) Posterior cerebral artery

d) Anterior choroidal artery

e) Internal carotid artery

Correct Answer - A:D:E

Ans .a, i.e., Middle cerebral artery 'd'i.e., Anterior choroidal artery; 'e' i.e, Internal carotid artery Optic tract is supplied by :

- Anterior choroidal artery (branch of internal carotid artery)
- Posterior communicating artery (branch of ICA);
- Middle cerebral artery (Branch of ICA)

9. True about development of cochlea

a) Fully developed at 22 weeks

b) Derived from surface ectoderm

c) Develops in bony labyrinth

d) Develops from otic vesicle

e) Develops from otic capsule

Correct Answer - A:C:E

Ans. a. Fully developed at 22 weeks; 'c'i.e., Develops in bony labyrinth; 'e' 1.e., Develops from otic capsule

- Development of internal ear starts by the age of 3 weeks of intrauterine life development of membranous internal ear is completed by 16th week and reaches its adult size & shape by 20-22 weeks when the cochlea is developed sufficiently.
- Development of phylogenetically older part of labyrinth, i.e pars superior (semi-circular canal and utricle) takes place earlier than pars inferior (saccule and cochlea).

DEVELOPMENT DERIVATIVES OF EAR:

Surface ectoderm:

- Membranous labyrinth
- Epithelial lining of external auditory meatus
- Outer surface of tympanic membrane

Mesoderm:

- Bony labyrinth
- Ear ossicle
- Skeletal muscle
- Centre of tympanic membrane

Endoderm:

- Eustachian tube lining
- Middle ear cavity
- Epithelial covering of ossicle
- Inner layer of tympanic membrane
- Tympanic membrane is derived from all three layers of germ line.

10. Urogenital diaphragm is made up of –

a) Deep transverse perinei

b) Perineal membrane

c) Sphincter Urethrae

d) Fascia of urogenital diaphragm

e) All the above

Correct Answer - E

Ans. e. All the above

Urogenital diaphragm :

Consists of two muscles :

- Sphincter urethrae
- Deep transverse perinei, also called transversus pernei profundus

Two fasciae:

- Inferior fascia of urogenital diaphragm, also called perineal membrane
- Superior fascia of urogenital diaphragm

11. True about epiglottis –

a) Contains serous gland

b) Contains mucous secreting glands

c) It is oval shaped

d) Made up of elastic cartilage

e) Has bilateral lymphatic supply

Correct Answer - B:D:E

Ans. b) Contains mucous secreting glands; d) Made up of elastic cartilage ; e) Has bilateral lymphatic supply

Epiglottis:

- The epiglottis of elastic cartilage tissue covered with a mucous membrane, attached to the entrance of the larynx.
- The epiglottis has two surfaces, lingual and a laryngeal surface, related to the oral cavity and the larynx respectively
- The entire lingual surface and the apical portion of the laryngeal surface are covered by a stratified squamous non-keratinized epithelium.
- The rest of the laryngeal surface on, which is in relation to the respiratory system' has respiratory epithelium: pseudostratified, ciliated columnar cells and mucus secreting Goblet cells.
- Epiglottis has bilateral lymphatic drainage topper deep cervical lymph nodes

12. Which of the following statements are true regarding diffusion of gas in lung -

a) Diffusion of gas is perfusion limited

b) CO, diffuses 20 times faster than 02

c) PO_2 gradient is low between alveoli & blood vessel in case of restrictive lung disease

d) Diffusion of gas is decreased in emphysema

e) Diffusion capacity of 0, is 25

Correct Answer - A:B:D:E

Ans. (A) Diffusion of gas is perfusion limited (B) CO, diffuses 20 times faster than 02 (D) Diffusion of gas is decreased in emphysema (E) Diffusion capacity of 0, is 25

Ref: Textbook of respiratory physiology 3rd ed / p 913

Flow-limit (Perfusion - limited) Vs diffusion - limited transport:

- Diffusion of O2, CO2, N2O across the respiratory membrane are all flow (perfusion) limited.
- CO transfer is diffusion-limited - Since carbon monoxide (CO) is taken up by hemoglobin and it binds so avidly with Hb.
- Diffusion Capacity Of O2 - 2O-25 ml/min/mmHg.
- Diffusion Capacity Of CO2 - 400 ml/min/mmHg

CO2 diffuses 15-20 times faster than O2

Diffusion of gas in emphysema:

- Emphysema Causes thickening of respiratory membrane → Causing reduced diffusion to gases.

13. Which of the following about renin angiotensin system are true -

a) Renin is produced by modified smooth muscles of glomerular capillary

b) Macula densa cells are part of this pathway

c) Angiotensinogen is converted to angiotensin by this pathway

d) Angiotensin converting enzyme is present in lung capillary endothelial cell

e) Angiotensin -II is decapeptide

Correct Answer - A:B:C:D

Ans. (A) Renin is produced by modified smooth muscles of glomerular capillary (B) Macula densa cells are part of this pathway (C) Angiotensinogen is converted to angiotensin by this pathway (D) Angiotensin converting enzyme is present in lung capillary endothelial cell

Ref: Principles of medical physiology p. 417 Ganong 25th/e p. 672-700

Juxtaglomerular apparatus:

- The juxtaglomerular aPParatus is located at the angle of the afferent and efferent arterioles, where it comes in contact with the distal tubules.
- It comprises the macula densa, juxtaglomerular (JG cells), and the lacis cells.
- Juxtaglomerular (granular) cells are modified smooth muscle cells in the scala media of the terminal part of the afferent arterioles.
- They contain large granules and secrete renin.

- Lacis cells (extraglomerular mesangial cells) that are located in the angular space between the junction of afferent and efferent arterioles & also contain some renin.
- The part of the distal tubule which comes in contact with the afferent arteriole is made of a specialized epithelium called the macula densa.

RENIN-ANGIOTENSIN SYSTEM:

- Renin is a protease enzyme which is secreted by juxtaglomerular (jG) cells of afferent arterioles.
- Most powerful stimulus for renin release is reduced renal perfusion pressure
- Lowered pressure stimulate renin release.
- Increased NaCl in distal tubules is sensed by macula densa and the signal is transmitted to JG cells.
- This results in decreased Renin release.
- Opposite occurs when decreased NaCl is delivered in distal tubule, i.e., increased renin release.
- Adenosine is probably the mediator of signal.
- JG cells are innervated by sympathetic fibers. They release renin in response to sympathetic discharge, and by circulating catecholamines.
- The renin released from the jG cells enters the circulation and acts on an alpha 2-globulin.
- Angiotensinogen (secreted by the liver to convert it into a decapeptide, angiotensin I by splitting Leucine-Valine bond of angiotensinogen.
- The enzyme angiotensin converting enzyme (ACE) then acts on angiotensin I and convert it into an octapeptide, angiotensin II, by splitting phenylalanine-histidine bond of angiotensin II.
- ACE is found on the surface of capillary endothelium of lung, therefore angiotensin II is formed on lung capillary endothelium.
- Angiotensin II is degraded into angiotensin III by splitting asparagine-arginine bond by aminopeptidase.

14. True about renal tubular system are ?

a) Ascending loop of Henle actively pumps Chloride out of tubule

b) Ascending loop of Henle actively pumps Carbonate out of tubule

c) Descending loop of Henle is permeable to water

d) Ascending loop of Henle is impermeable to water

e) Descending loop of Henle receives hypotonic solution

Correct Answer - A:C:D

Ans. (A) Ascending loop of Henle actively pumps Chloride out of tubule (C) Descending loop of Henle is permeable to water (D) Ascending loop of Henle is impermeable to water Ref: Ganong 25th/e p.680-682

Thin descending segment (limb):

Highly permeable to water.

- Water absorption is obligatory and occurs through aquaporin-1 water channel.
- Relatively impermeable to solutes (sodium, chloride and urea).
- Therefore, only water is reabsorbed from the thin descending Henle → hypertonic fluid.
- No active secretion or reabsorption.

Thin ascending segment (Limb):

- Less permeable to water but is very much permeable to Nacl.

Thick ascending segment (limb):

- Totally impermeable to water.
- Hypotonic to plasma.
- Hence, Diluting segment.
- 30 % of filtered Na- is reabsorbed in ascending limb (60%,

reabsorbed in proximal tubule).

15. True statement about nerve muscle physiology is ?

a) Action potential traverses along T tubules

b) Contraction is mainly because of extracellular calcium

c) Rynadine receptors sense the action potiential

d) actin pulls the myosin

e) ATP binds to myosin

Correct Answer - A:C:E

Ans. (A) Action potential traverses along T tubules
(C) Rynadine receptors sense the action potiential (E) ATP binds to myosin
Excitation contraction coupling:

- Skeletal muscle fiber is innervated by A-alpha neuron.
  - Carries the impulse (action potential) to neuromuscular junction where release of acetylcholine from presynaptic vesicle occurs.

Events:

- Each sarcomere has T-tubules.
- T-tubule depolarizes, conformational changes occur in dihydropyridine Receptors (DHPR) of T-tubules.
- Leads to an interaction between DHPR and Ryanodine receptors (RyR) in the terminal cisterns of sarcoplasmic reticulum.
- DHPR-RyR interaction leads to release of Ca+ ions from the terminal cisterns into the cytoplasm (sarcoplasm).
- Diffusion of Ca+ into sarcoplasm causes muscle Contraction.

Molecular events:

- **Cross-bridge cycle:**

- Cross-bridging of myosin with actin → produces bending (flexion) of myosin head → produces “Power stroke” sliding of actin on myosin and muscle contraction.

16. True about copper metabolism is are ?

a) Intestinal absorption occurs in duodenum

b) 95% bond to albumin in the serum

c) Ceruloplosmin contains 6 atoms of copper

d) Failure to Synthesize ceruloplasmin causes wilson's disease

e) Copper excretion mainly occurs in urine

Correct Answer - A:C:D

Ans. (A) Intestinal absorption occurs in duodenum (C) Ceruloplosmin contains 6 atoms of copper (D) Failure to Synthesize ceruloplasmin causes wilson's disease

Ref: Dinesh puri 3ed/ p. 412

- Copper primarily functions as a component of metalloenzymes or proteins that participate in redox reactions.
- Adult human body contains 50-100 mg of copper of which largest amount are present in muscles (30-50mg), bones (10- 20mg), and liver (10-15 mg).

Absorption:

- Intestinal absorption of copper occurs mainly from duodenum.

Significance of Ceruloplasmin:

- From portal circulation, copper is transported to liver, bind to albumin,within hepatocytes copper is incorporated into apoceruloplasmin to form ceruloplasmin.
- Ceruloplasmin contains 6-8 atoms of copper.
- Failure to synthesize ceruloplasmin is implicated in pathogenesis of wilson disease.

Transport and excretion

- Plasma concentration of copper is 100-200 mg/dl, about 95% of

which is bound to ceruloplasmin,
Excretion of copper mainly occurs in bile.

17. Which of the following enzymes of urea cycle is/are not present in mitochondria?

a) Carbamoyl phosphate synthetase-1 [CPS-1]

b) Arginase

c) Arginosuccinase

d) Arginosuccinate synthase

e) Ornithine transcarbamylase

Correct Answer - B:C:D

Ans. is 'b' i.e., Arginase, 'c' i.e., Arginosuccinase & 'd' i.e. Arginosuccinate synthase *[Ref Harper's 30th/e* p. *291]*

- Ammonia is ultimately disposed of by formation of urea by "Kreb's Henseleit urea cycle" in the liver.
- Urea cycle takes place both in mitochondria and cytosol.
- First two reactions of urea cycle occur in the mitochondria, and remaining reactions occurs in cytosol
- Argininosuccinate synthase catalyzes the formation of argininosuccinate from citrulline and aspartate. This reaction requires IATP, but 2 high energy phosphate bonds are consumed as ATP is converted to AMP + PPi. The amino group of aspartate provides one of the two nitrogen atoms that appear in urea (The other one is provided by ammonia NH4).
- Argininosuccinate lyase (argininosuccinase) catalyses the cleavage of argininosuccinate into arginine and fumarate. Fumarate enters in TCA cycle.
- Arginase catalyses the formation of urea from arginine by hydrolytic cleavage of arginine to yield urea and ornithine. Ornithine is thus

regenerated and can enter mitochondria to initiate another round of the urea cycle.

18. Regulatory enzymes of glycolysis are -

a) Phosphofructokinase

b) Pyruvate kinase

c) BPG kinase

d) Hexokinase

e) Glucose -6- phosphatase

Correct Answer - A:B:D

Ans. 'a' i.e., Phosphofructokinase, 'b' i.e., Pyruvate kinase & 'd' i.e., Hexokinase *[Ref Harper's 30th le p. 170-177]*

- Glycolysis is regulated at 3 steps which are irreversible. These reactions are catalyzed by following key enzymes : (1) Hexokinase and glucokinase, (2) Phosphofructokinase I, and (3) Pyruvate kinase.
- Hexokinase is found in most of the tissue except liver and comes into play when blood glucose is low. It is not affected by feeding or insulin or starvation. Hexokinase is not specific for glucose metabolism, it is also involved in metabolism of fructose and galactose.
- Phosphofructokinase I is the major regulatory enzyme of glycolysis. It catalyzes the 3rd reaction of glycolysis, i.e., fructose-6-P -a Fructose 1,6 bis-P. This reaction is irreversible and is the "rate - limiting step" for glycolysis.
- It is allosterically activated by : Fructose-6-phosphate, fructose 2,6-bisphophate, AMP, ADP, $K^{\cdot}$ and phosphate. It is allosterically inhibited by : ATP, citrate, Ca+2, Mg+2, and low pH. Phosphofructokinase is an inducible enzyme that increases its

synthesis in response to insulin and decreases in response to glucagon.

- Pyruvate kinase is enzyme that catalyzes conversion of PEP to pyruvate. Pyruvate kinase is an inducible enzyme that increases in concentration with high insulin level and decreases with glucagon. It is activated by fructose-1,6 bisphosphate and inactivated by ATP and alanine.

19. Which of the following is/are to-6 fatty acid(s)

a) Linoleic acid

b) Arachidinic acid

c) Gamma linolenic acid

d) Alpha linolenic acid

e) Oleic acid

Correct Answer - A:B:C

Ans. is 'a' i.e., Linoleic acid, 'b' i.e., Arachidinic acid & 'c' i.e., Gamma linolenic acid *[Ref: Harper's 30th Ie* p. *2141*

- Linoleic acid (18 carbon: Chemical formula $'^{a}CH, - (CH,), - CH = CH - CH_2 - CH = CH - (CH_2)_7 - COOH$
- C-System C:18:2:6,^{9,12} or C:18:2:9,12, i.e. 18 carbon fatty acid with 2 double bonds at 9^{15} (between C-9 and C-10) and 12' (between C-12 and C-13) positions when numbering is started from carboxyl carbon.
- co-system C:18:2:w-6,9, i.e. 18 carbon fatty acid with 2 double bonds at 6th (between C-6 and C-7) and 9' (between C-9 and C-10) positions when numbering is started from terminal methyl carbon. So linoleic acid is co-6 fatty acid, as the first double bond is at 6th position in co-system classification.
- Arachidonic acid (20 carbon) Chemical formula $C_{20}H_{32}O_2$

20. Nonreducing sugars are all except -

a) Glucose

b) Maltose

c) Sucrose

d) Fructose

e) Galactose

Correct Answer - A:B:D:E

Ans. is 'a' i.e., Glucose; b' i.e., Maltose; 'd' i.e., Fructose & `e' i.e., Galactose *[Rep Dinesh Puri 3"'/e le p. 24]*

- Reducing sugars are sugars which have free aldehyde or ketone group their in their structure. Because of the presence of free aldehyde or ketone group, they can reduce certain heavy metallic cations in an alkali medium and in the process they themselves get oxidized to a mixture of sugar acids.
- Glucose and galactose have free aldehyde group at carbon-1, and fructose has free ketone group at carbon-2. Thus, reducing end of glucose and galactose is carbon-1 and of fructose is carbon-2.
- Sucrose (disaccharide of glucose and fructose) is formed due to formation of a-glycosidic bond between carbon-1 of glucose and carbon-2 of fructose (Glucose - al → 2 - Fructose). Thus, reducing end of both glucose (carbon-1) and fructose (carbon-2) are involved in glycosidic bond formation and therefore lost their reducing property. Hence, sucrose is a non-reducing disaccharide.

21. Apo integrated in HDL is -

a) Apo Al

b) Apo E

c) Apo D

d) Apo B48

e) Apo B100

Correct Answer - A:B:C

Ans. is 'a' i.e., Apo Al; 'b' i.e., Apo E; & 'c' i.e., ApoD *[Ref Harper's 30th/e p. 257, 255; Chatterjee 6th/e p. 382]*

- Apo-A1 is found in HDL,Chylomicrons, site of synthesi is Liver, intestine,and function in Major structural protein of HDL, major activator of LCAT.
- Apo-E (arginine rich), found in -Chylomicrons, chylomicron,site of synthesis- liver, function as Mediates uptake of chylomicron remnants and IDL by LDL receptors in liver.
- Apo-D--found in HDL-Spleen, brain, testes, adrenal

22. Poor wound healing in vitamin 'C' deficiency is due to all except -

a) Inhibition of collagen synthesis

b) Defective collagen synthesis

c) Defective post-translational modification of collagen

d) Defective hydroxylation

e) Defect in antioxidant system

Correct Answer - A

Ans. is "a" Inhibition of collagen synthesis

- Ascorbic acid (Vitamin C) is also called antiscorbutic factor. It is very heat labile, especially in basic medium. Ascorbic acid itself is an active form. Maximum amount of vitamin C is found in adrenal cortex.
- Ascorbic acid functions as a reducing agent and scavanger of free radicals (antioxidant). Its major functions are

. vitamin C is essential for the conversion of procollagen to collagen, which is rich in hydroxyproline and hydroxylysine. Through collagen synthesis, it plays a role in the formation of matrix of bone, cartilage, dentine and connective tissue.

. Vitamin C is required for post-translational modification by hydroxylation of proline and lysine residues converting them into hydroxyproline and hydroxylysine.

23. UDP-glucose is used for -

a) Glycogen synthesis

b) Galactose metabolism

c) Bilirubin metabolism

d) Ganglioside synthesis

e) Heparin synthesis

Correct Answer - A:B:C:E

Ans. is 'a' i.e., Glycogen synthesis; 'b' i.e., Galactose metabolism; 'c' i.e., Bilirubin metabolism; & `e' i.e., Heparin synthesis *[Ref Basic medical biochemistry p. 475]*

- UDP-glucose is derived from glucose-6-phosphate via glucose-l-phosphate.
- The major fate of UDP-glucose is the synthesis of glycogen.

Other uses of UDP-glucose are -

. In uronic acid (glucoronic acid) cycle to generate UDP glucuronate.
. Galactose metabolism

- Glycosylation of proteins, lipids and proteoglycans.
- UDP glucuronate (which is derived from UDP glucose) is used for :-

. Conjugation of bilirubin, benzoic acid, sterols, estrogen and drugs.
. Biosynthesis

24. Which of the following enzymes have proof reading function in PCR [Polymerase Chain Reaction]

a) Taq polymerase

b) PFU Polymerase

c) Thermos thermophilus

d) Thermal flavus (Replinase)

e) T-7 polymerase

Correct Answer - B:E

Ans. is 'b' i.e., PFU Polymerase; & 'e' i.e., T-7 polymerase

[Ref Textbook of PCR by Mike McPherson]

- The use of high fidelity DNA polymerases in PCR is essential for reducing the introduction of amplification errors in PCR products.
- Several thermostable DNA polymerases with 3' → 5' exonuclease - dependent proofreading activity have been introduced for high.
- Pfu DNA polymerase → Derived from Pyrococcus fusarious.
- Pwo DNA polymerase → Isolated from Pyrococcus woesei.
- KOD HiFi DNA polymerase → Isolated from Thermococcus Kodakaraensis.
- T7 DNA polymerase.

25. Which DNA polymerase has/have proofreading activity -

a) DNA polymerase I

b) DNA polymerase II

c) DNA polymerase a

d) DNA polymerase δ

e) DNA polymerase y

Correct Answer - A:B:D

Ans. is 'a' i.e., DNA polymerase I; 'b' i.e., DNA polymerase II; & 'd' i.e., DNA polymerase δ

DNA polymerase I - possesses three different catalytic activities :?

. 5'→ 3' exonuclease activity, Polymerase activity (5'→3' polymerase activity), 3'→ 5' exonuclease activity,

. DNA polymerase I :- Helps in gap filling and synthesis between okazaki fragments of lagging strand, and replaces ribonucleotides of RNA primer by deoxyribonucleotides. It has (i) 3' → 5' exonuclease activity, (ii) 5' → 3' exonuclease activity and (iii) polymerase (5' → 3' polymerase) activity.

. DNA polymerase I :- Helps in gap filling and synthesis between okazaki fragments of lagging strand, and replaces ribonucleotides of RNA primer by deoxyribonucleotides. It has (i) 3' → 5' exonuclease activity, (ii) 5' → 3' exonuclease activity and (iii) polymerase (5' → 3' polymerase) activity.

. DNA polymerase II:- Helps in (i) proofreading (3' à 5' exonuclease activity), and (ii) DNA repair.

. DNA polymerase III :- It is the main enzyme that synthesizes prokaryote DNA, i.e., synthesis of leading and lagging strand. It has (i) $5^1 \rightarrow 3'$ polymerase (or simply polymerase) activity for DNA synthesis, and (ii) 3'--> 5^1 exonuclease activity for proofreading.

26. Components / genes involved in RISC complex -

a) Pasha

b) Mi RNA

c) rRNA

d) Drosha

e) Dicer nuclease

Correct Answer - A:B:D:E

Ans. is 'a' i.e., Pasha; 'b' i.e., Mi RNA; 'd' i.e., Drosha; & 'e' i.e., Dicer nuclease *[Ref Textbook of molecular biology p.7121]*

- RNA- induced silencing complex (RISC) is a multiprotein complex that incorporates one strand of a double stranded small interfering RNA (siRNA) or single stranded micro RNA (miRNA).
- RISC uses the siRNA or miRNA as a template for recognizing complementary mRNA.
- Once RISC finds complementary strand of mRNA (with help of miRNA or siRNA), it activates RNAase to cleave (degrade) mRNA.
- The RISC-loading complex (RLC) is the essential structure required to load dsRNA fragments into RISC in order to target mRNA. The RLC consists of dicer, the human immunodeficiency virus transactivating response RNA-binding protein (TRBP) and Argonuate 2.
- A nuclear RNAase specific for dsRNA called Drosha acts with a nuclear ds-RNA binding protien called DGCR in human **(Pasha** in Dorsophila) and cleaves the hairpin region out of long precursor RNA generating a pre-miRNA.

27. Which of the following is required for unwinding of DNA -

a) Helicase

b) Primase

c) SSBP

d) Ligase

e) Topoisomerase

Correct Answer - A

Ans. is 'a' i.e., Helicase *[Ref: Harper's 30th Ie p. 383 & 29th p. 367]*

protein	function
DNA polymerases	Deoxynucleotide polymerization
Helicases	Processive unwinding of DNA
Topoisomerases	Relieve torsional strain that results from helicase induced unwinding
DNA primase	Initiates synthesis of RNA primers
Single-strand binding proteins	Prevent premature reannealling of dsDNA
DNA ligase	Seals the single strand nick between the nascent chain and Okazaki fragments on lagging strand

28. 30S ribosome CONSIST of all except -

a) mRNA

b) ATP

c) GTP

d) Initiating factor and Elongating factor

e) None

Correct Answer - E

Ans. is None *[Ref Lippincates 5th/e p. 436]*

- Ribosomes are large complexes of r-RNA and proteins with one large and one small subunits.
- The **small subunit** binds m-RNA, thus guiding interaction between m-RNA codon and anticodon of t-RNA to read the genetic information with exiquisite **fidelity.** Hence small subunit is responsible for accuracy, whereas the **large subunit** catalyzes the **formation of peptide bond.**
- **Ribosomes are composed of two unequal subunits.**
- Eukaryotic(80 S) ribosome is made up of 60 S and 40 S subunits.
- Prokaryotic (70S) ribosome is made of 50S and 30S subunits.

60S subunit of eukaryotes contains 5 S rRNA, 5.8 S rRNA, 28S rRNA and more than 50 polypeptides. 40 S subunit contains 18 S rRNA and about 30 polypeptide chains.

29. 30S ribosome INTERACTS with all except?

a) mRNA

b) ATP

c) GTP

d) Initiating factor

e) Elongating factor

Correct Answer - B:E

ANS- 'b' i.e., ATP; & 'e' i.e., Elongating factor *[Ref Dinesh Purl Y^{a}le* p. *482, 483]*

- INIATIATION process begins by formation of 30S initiation complex between 30S ribosomal subunit, mRNA and formyl mettRNA. GTP serves as source of energy. Three initiation factors (IF1, IF2, IF3) are also required for formation of this complex.
- Then there is formation of 70S initiation complex by joining of 50S and 30S subunits. In this complex, initiator tRNA occopies P-site on the ribosome. `A'-site is still empty.
- Elongation factors : EF-Tu, EF-Ts, EF-G.

30. Enzymes required for mRNA synthesis is/are ?

a) RNA polymerase I

b) RNA polymerase II

c) Primase

d) Topoisomerase

e) Ligase

Correct Answer - B

Ans. is 'b' i.e., RNA polymerase II *[Ref Herper's 30"'/e p. 390-400]*

- It catalyzes the synthesis of *mRNA, small nuclear RNA (sn-RNA) and miRNA.*
- These products are coded by class II gene, i.e. class II gene is transcribed by mRNA.
- Class II gene differ from class I and III in that one of its transcribed products (mRNA) is translated into protein.

31. Complementary DNA differs from genomic DNA in -

a) Has coded segments

b) Has introns

c) Has only exons

d) Uses reverse transcriptase

e) Larger

Correct Answer - A:C:D

Ans. is 'a' i.e., Has coded segments; 'c' i.e., Has only exons; & 'd' i.e., Uses reverse transcriptase. [Ref: Lehninger 5"Ye p. 940-9601

- Collection of cloned (recombinant) DNA fragments is called DNA library or shotgun collection. DNA libraries may be of two types ?

1) Genomic library :-

- The entire genomic DNA (both exons and introns) of an organism is cut into small pieces by restriction endonucleases.
- Each and every fragment is then cloned with suitable vector. These recombinant clones are then collected.

2) Complementary DNA (cDNA) library :-

- In cDNA library only exons are represented. It is constructed so as to include only those genes that are expressed.
- cDNA library is more specialized and exclusive DNA library. The mRNAs from an organism is extracted and complementary double stranded DNAs (cDNAs) are produced from these mRNAs by reverse transcriptase. The resulting DNA fragments are then inserted into a suitable vector and cloned

32. Micro Satellite instability is seen in ?

a) Huntington's disease

b) Lynch syndrome

c) Spinocerebellar ataxia

d) HNPCC

e) Colorectal cancer

Correct Answer - A:B:C:D:E

Ans. is 'a' i.e., Huntington's disease; 'b' i.e., Lynch syndrome; 'c' i.e., Spinocerebellar ataxia; 'd' i.e., HNPCC; & 'e' i.e., Colorectal cancer *[Ref Textbook of genetic counselling p. 712]*

- Microsatellite instability is genetic instability in short nucleotide repeats (microsatellites) due to high mutation rate as a result of defects in mismatch repair of DNA.
- Sometimes replication errors escape the proofreading function during DNA synthesis causing a mismatch of one of several bases. These errors are repaired later.
- An important point is that the repair system must be able to discriminate between the parent (template) strand and the new daughter strand because it is the base on the daughter strand parent that is incorrect so needs to be excised.
- Methyl group on parent strand attached to adenine (methylated adenine) near the mismatch serves as a tag by which the repair system identifies .
- Several Neurological disease are characterized by microsatellite sequence instability including Huntington's disease, myotonic dystrophy, Fragile-X syndrome, Friedreich's ataxia and spinocerebellar ataxia.

33. Features of irreversible cell injury are

a) Lysosomal injury

b) Pyknosis

c) Cell membrane injury

d) Mitochondrial amorphous deposits

e) Apoptotic bodies

Correct Answer - B:C:D:E

Answer- B,Pyknosis C,Cell membrane injury D,Mitochondrial amorphous deposits E,Apoptotic bodies

Characteristic features are -

- Large flocculent amorphous densities in mitodrondria due to accumulation of calcium.
- Intracytoplasmic myeline figures appear during reversible injury but becomes more prominent in irreversible injury.
- Nuclear changes : These are most specific and include pyknosis (nuclear condensation), karyorrhexis (fragmentation of nucleus), and karyolysis (nuclear dissolution).
- Decreased basophilia (due to decreased ribonucleo protein).
- Leakage of intracellular enzyme across damaged cell membrane into periphral circulation
- Apoptotic bodies are seen in apoptosis, which is a pattern of death after irreversible injury.

34. Premalignant lesion of oral cavity includes

a) Lichen planus

b) Erythroplakia

c) Bowen disease

d) Behchet disease

e) None

Correct Answer - B

Answer- B. Erythroplakia

- Premalignant condition: - Leukoplakia, Erythroplakia, Speckled erythroplakia, chronic hyperplastic candidiasis.

35. Prothrombin time is elevated in following conditions

a) Defect in factor XI

b) Fibrinogen defect

c) DIC

d) Factor VII defect

e) Von Willebrand disease

Correct Answer - B:C:D

Answer- B,Fibrinogen defect C,DIC D,Factor VII defect

- It tests the extrinsic and common coagulation pathways. So, a prolonged PT can results from deficiency of factor V,
- VII, X, prothrombin or fbrinogen.

36. Following findings are seen in rheumatic heart disease

a) Mc Callums plaque

b) Thickening of mitral valve

c) Fibrous plaque on undersurface of aortic valve

d) Aschoff bodies in myocardium

e) None

Correct Answer - A:B:D

Answer- A,Mc Callums plaque B,Thickening of mitral valve D,Aschoff bodies in myocardium 1) Acute rheumatic carditis-

- The characteristic histological finding of rheumatic carditis is Aschoff bodies/or Aschoff nodules.

2) Chronic rheumatic carditis-

- Irregular thickening of posterior wall of left atrium produces MacCallum plaque/patch due to subendothelial collection of Aschoff nodules.
- Endocardium involvement leads to formation of small warty projections (verrucae) along the line of closure of valvular leaflet, mostly on mitral valve.

37. Increased reticulocyte count is seen in

a) Megaloblastic anemia on treatment with hematinics

b) Acute hemorrhage

c) Congenital dyserythropoietic anemia

d) Hereditary spherocytosis

e) Aplastic anemia

Correct Answer - A:B

Answer- A,Megaloblastic anemia on treatment with hematinics B,Acute hemorrhage

- Acute blood loss or hemorrhage
- Postsplenectomy
- Microangiopathicanemia
- Autoimmune hemolytic anemia
- Hemoglobinopathy
- Post anemia treatment
- vitamin B12 supplementation

38. Increased reticulocytes are seen in

a) Aplastic anemia

b) B12 deficiency on treatment with hematinics

c) Iron deficiency anemia

d) Hemolytic anemia

e) None

Correct Answer - B:D
Answer- B,B12 deficiency on treatment with hematinics D,Hemolytic anemia

- Acute blood loss or hemorrhage
- Postsplenectomy
- Microangiopathicanemia
- Autoimmune hemolytic anemia
- Hemoglobinopathy
- Post anemia treatment
- vitamin B12 supplementation

39. Parameters which are increased more than normal in iron deficiency anemia are

a) TIBC

b) Serum ferritin

c) Transferring saturation

d) Transferring receptors

e) None

Correct Answer - A:D

Answer- A,TIBC D,Transferring receptors

- Serum level decrease
- TIBC increase
- Serum ferrritin decrease
- Red cell protoporphyrin decrease
- Serum transferring receptors protein increased. (STFR to log of ferritin)

40. The following laboratory finding differentiate anemia of chronic disease from iron deficiency anemia

a) TIBC

b) Transferring saturation

c) Serum iron levels

d) Decreased utilization of endogenous ferritin

e) All of theabove

Correct Answer - A:B:D

Answer- A,TIBC B,Transferring saturation D,Decreased utilization of endogenous ferritin

- Haemoglobin- anaemia mild to moderate
- Blood picture- microcytosis and hypochromic (but mostly normocytic & normochromic)
- Absolute values- MCHC is low
- Reticulocyte count- low
- Red cell survival- shorten lifespan of erythrocytes
- Bone marrow- myeloid hyperplasia & increase in plasma cells.
- Serum iron & TIBC- low
- Serum ferritin- increased (most distinguishing feature of chronic disorder)
- Other plasma proteins- raised

41. True about dystrophic calcification -

a) Raised calcium level

b) Seen in dead/degenerative tissue

c) Seen in Sarcoidosis

d) Seen in atherosclerosis

e) Seen in rheumatic fever

Correct Answer - B:D:E

Answer- (B) Seen in dead/degenerative tissue (D) Seen in atherosclerosis (E) Seen in rheumatic fever

Dystrophic calcification in dead tissues-

- Necrosis of tuberculosis (most common which may be in lymph nodes)
- Chronic abscess in liquifactive necrosis
- Infarct
- Thrombi
- Dystrophic calcification in degenerated tissues
- Atheromatous plaque
- Psommama bodies
- Heart valves damaged by rheumatic fever

42. Which of the following is/are due to non-disjunction of autosomes

a) Klinefelters syndrome

b) Turners syndrome

c) Pataus syndrome

d) Edward syndrome

e) Cri du Chat syndrome

Correct Answer - C:D

Answer- C,Pataus syndrome D,Edward syndrome

- Nondisjunction of autosomes: Down syndrome, edward syndrome, patau syndrome

43. Which of the following acute phase protein(s) decreases during acute inflammation

a) Albumin

b) Transferrin

c) Ceruloplasmin

d) C-reactive protein

e) Haptoglobin

Correct Answer - A:B
Answer- A,Albumin B,Transferrin
Negative acute phase proteins

- These proteins are decreased during inflammation. Important examples are albumin, prealbumin, transferrin, transcortin, transthyretin and retinal binding protein

44. Which of the following combinations are true

a) Hyaline casts- normal

b) Waxy casts-chronic pyelonephritis

c) Broad casts - CRF

d) RBC casts-glomerulonephritis

e) Muddy casts-acute tubular necrosis

Correct Answer - A:B:C:D:E

Answer- A,Hyaline casts- normal B,Waxy casts-chronic pyelonephritis C,Broad casts - CRF D,RBC casts-glomerulonephritis E,Muddy casts-acute tubular necrosis Hyaline casts

- These are the most common casts and consists almost entirely of Tamm-Horsfall protein
  Renal tubular epithelial cell casts
- Epithelial cells are present along with cast
  Waxy casts
- These are seen in chronic renal diseases
  Broadcast
- These are seen in advanced renal failure
  RBC casts
- There are seen in nepahritic syndrome due to glomenulonephritis
  Muddy casts
- It is pathognomonic of acute tubular necrosis (ATN)

45. True regarding cast examination in urine

a) Acid is added

b) Examined at the edge of cover slip

c) Sediment is used

d) Contrifuge is not used

e) Broad cast indicates stasis of urine flow

Correct Answer - A:C:E

Answer- A,Acid is added C,Sediment is used E,Broad cast indicates stasis of urine flow

- The cellular elements are best preserved in acid.
- The urine sediment can be broken down into cellular elements.
- Broad casts
- Formation occurs in collecting tubules: serious kidney disorder, extreme stasis of flow.

46. True about alcoholic steatosis

a) Microvesicular

b) Macrovesicular

c) Reversible

d) Mallory hyaline

e) Central hyaline sclerosis

Correct Answer - A:B:C

Answer- A,Microvesicular B,Macrovesicular C,Reversible Hepatic steatosis (Fattyliver)

- Initially there is microvesicular fatty change. Later macrovesicular fatty changes are also seen. It is reversible stage.

47. True about Dubin-Johnson syndrome -

a) Increased conjugated bilirubin

b) Usually associated with increased AST and ALT

c) Mutation in uridine diphosphate-glucuronyltransferase peptide AI

d) Decreased biliary excretion of conjugated bilirubin

e) Autosomal dominant inheritance

Correct Answer - A:D

Answer- (A) Increased conjugated bilirubin (D) Decreased biliary excretion of conjugated bilirubin

- During Johnson syndrome is an autosomal recessive hereditary disorder presenting with conjugated hyperbilirubinemia due to defect in hepatic excretory function across the canalicular membrane of hepatocyte.
- DJS is a type of congenital conjugated hyperbilirubinemia.

Conjugated bilirubin is increased because of defective biliary excretion of bilirubin glucuronides due to mutation in canalicular multi drug resistance protein 2.

48. Malignancies associated with HIV are -

a) Kaposis sarcoma

b) NHL

c) Anal Carcinoma

d) Cervical Carcinoma

e) Colon Carcinom

Correct Answer - A:B:C:D

Answer- (A) Kaposis sarcoma (B) NHL (C) Anal Carcinoma (D) Cervical Carcinoma

- Kaposi sarcoma is the most common tumor in AIDS.

Non-Hodgkin lymphomas (NHLs) in AIDS are -

- Primary CNS lymphoma (associated with EBV)
- Burkitt's lymphoma
- Hodgkin's disease
- Leukemia
- Multiple myeloma
- Cervical Ca
- Anal Ca

49. Common metaphyseal tumors are -

a) Enchondroma

b) Osteosarcoma

c) Non ossifying fibroma

d) Osteoid osteoma

e) Osteoclastoma

Correct Answer - A:B

Answer- (A) Enchondroma (B) Osteosarcoma

- Osteogenic sarcoma
- Unicameral (simple) bone cyst
- Aneurysmal bone ryst o Fibrous cortical defect
- Chondrosarcoma
- Osteochondroma
- Enchondroma
- Osteoblastoma

50. Which of the following combinations of carcinoma with their genetic mutations are true -

a) Carcinoma breast- BRCA1

b) Rhabomyosarcoma-C-KIT

c) Wilms tumor WT1

d) Retinoblastoma Rb

e) Neuroblastoma MYC

Correct Answer - A:C:D:E

Answer- (A) Carcinoma breast- BRCA1 (C) Wilms tumor WT1 (D) Retinoblastoma Rb (E) Neuroblastoma MYC ▪ Carcinomas of female breast and ovary- BRCA1 ▪ Wilms tumor- WT-I

- Retinoblastomas- RB
- Gastrointestinal stromal tumors, testicular seminoma, melanoma, AML- C-KIT
- Neuroblastoma- N MYC

51. Amydoid associated protein [AA protein] is seen in -

a) Multiple myeloma

b) Dialysis associated amyloidosis

c) Systemic sclerosis

d) Sjogren's syndrome

e) Renal cell carcinoma

Correct Answer - E

Answer- E Renal cell carcinoma

. Primary

. Secondary (reactive)

There is deposition of AA amyloid protein-

- Renal cell carcinoma (hypernephroma), Hodgkins lynphoma.

52. True about amyloid SSA -

a) Mutant transthyretin

b) Senile cardiac amyloidosis

c) Wild transthyretin

d) Familial polyneuropathy

e) Senile systemic amyloidosis

Correct Answer - B:C:E

Answer- (B) Senile cardiac amyloidosis (C) Wild transthyretin (E) Senile systemic amyloidosis

- SSA is characterized by depositio n of wild - type transthyretin (TTR) - based amyloid in parenchymal organs in elderly individual.
- SSA is common disease, affecting approximately 25%o of the population greater than 80 years old.
- SSA is characterized by amyloidosis clinically limited to heart; therefore, initially it was referred to as senile cardiac amyloidosis.
- This form of cardiac amyloidosis tends to run a benign clinical course.

53. Feature(s) of Turner syndrome is/are -

a) Monosomy of autosomes

b) Webbing of neck

c) Mental retardation

d) Short fourth metacarpal

e) Streak gonades

Correct Answer - B:D:E

Answer- (B) Webbing of neck (D) Short fourth metacarpal (E) Streak gonades ▪ 45X0

- Lymphadema of dorsum of hand & fat
- Loose skin fold at nape of neck
- Short stature
- Short Neck (with webbing of neck)
- Anomalies ear
- Broad shield like chest with widely spaced small nipple
- Renal anomalies (Horse-shoe, souble or cleft renal pelvis)Coart of aorta

54. Definitive Risk factors for carcinoma stomach is/are -

a) Smoking

b) Alcoholism

c) H Pylori infection

d) Chronic atrophic gastritc

e) Partial gastrectomy

Correct Answer - A:C:D:E

Answer- (A) Smoking (C) H Pylori infection (D) Chronic atrophic gastritc (E) Partial gastrectomy

- Environmental factors: H. Pylori infection, cigarette smoking, and low socioeconomic status.
- Host factors : Chronic gastritis, partial gastrectomy
- Intestinal metaplasia is the most significant precursor lesion for Gastric cancer.
- Genetic factors

55. True about Digeorge Syndrome -

a) B-cell deficiency

b) Defect in 3rd pharyngeal pouch

c) Hypoparathyroidism

d) Candidiasis

e) Thymic aplasia

Correct Answer - B:C:D:E **Answer- (B) Defect in 3rd pharyngeal pouch (C) Hypoparathyroidism (D) Candidiasis (E) Thymic aplasia**

Digeorge syndome is an example of a T cell deficiency that results from failure of development of the third and fourth pharyngeal pouches.

Clinical features include-

- Enhanced susceptibility- viral, fungal (mucocutaneous canididiasis) and bacterial infections
- Facial abnormalities : Hypertelorism, abnormal ears, short philtrum and micrognathia
- Hypocalcemic tetany due to failure of parathyroid development (Hypoparathyroidism).

56. Prognosis of Head & neck cancer is based on -

a) Site of the tumor

b) Stage of the tumor

c) Etiological agent

d) Age of patient

e) Gender of patient

Correct Answer - A:B:C

Answer- (A) Site of the tumor (B) Stage of the tumor (C) Etiological agent

- head and neck cancer is determined by tumor location and stage and etiology.

57. Suspicion of malignancy in thyroid nodule is indicated by all except -

a) Female gender

b) Dysphagia

c) Age 20-40 years

d) Increasing pain

e) Rapidly enlarging size

Correct Answer - A:B:C:E

Answer- (A) Female gender (B) Dysphagia (C) Age 20-40 years (E) Rapidly enlarging size

- The most common presenting sign of thyroid cancer is a thyroid nodule.
- Solitary or Multiple thyroid nodules
- Neck Nodes
- Hoarse voice of recent onset
- Mediastinal adenopathy
- Bone or lung metastasis
- Gender: Female > Males.

Age:

- More common at young adults.
- MTC usually diagnosed after 60.
- A history of a rapidly enlarging thyroid nodule usually indicates hemorrhage, and this occur in both benign and malignant disease.

58. True about competitive antagonists are ?

a) It decreases efficacy of agonist

b) It decreases potency of agonist

c) DRC is shifted to right side

d) K_m is increased

e) V_{max} is reduced

Correct Answer - B:C:D

Ans. (B) It decreases potency of agonist (C) DRC is shifted to right side (D) K_m is increased

Competitive inhibition:

- km is increased.
- V-max remains unchanged.

Competitive antagonist:

. Antagonist binds to the same receptors as agonist
. Antagonist resembles chemically with the agonist
. The same maximal response can be obtained
. Potency is reduced (Right shift of DRC)
. Km is increased but Vmax is unchanged

Non competitive antagonist:

. Binds to another site of receptor
. Does not resemble
. Maximal response is suppressed
. Efficacy is reduced (Flattening of DRC)
. Km is unchanged but Vmax. is reduced

59. Physiological antagonism is found in ?

a) Isoprenaline and salbutamol

b) Isoprenaline and adrenaline

c) Isoprenaline and propranolol

d) Adrenaline and histamine

e) Salbutamol and leukotrienes

Correct Answer - D:E

Ans. (D) Adrenaline and histamine (E) Salbutamol and leukotrienes

[Ref KDT p. 56]

Physiological antagonists:

- Produce opposite action by acting on different receptors.
- Histamine - bronchoconstriction & adrenaline - bronchodilation.
- Leukotrienes - bronchoconstriction & salbutamol - bronchodilation.

60. Side effect of clozapine are ?

a) Sedation

b) Seizures

c) Urinary incontinence

d) Decreased salivation

e) None

Correct Answer - A:B:C

Ans. (A) Sedation (B) Seizures (C) Urinary incontinence [Ref : KDT p.429;Katzang /ep- 497-498]

Side effects of clozapine

- Agranulocytosis
- Urinary incontinence
- Unstable BP & Tachycardia
- Hypersalivation (sialorrhoea)
- Worsening of diabetes
- Weight gain
- Seizures
- Sedation

61. Which is true regarding naltrexone -

a) It is an opioid antagonist

b) It is an opioid agonist

c) Used in alcohol dependence

d) Used to treat opioid dependence

e) Used as a respiratory stimulant

Correct Answer - A:C:D

Ans. (A) It is an opioid antagonist (C) Used in alcohol dependence (D) Used to treat opioid dependence

[Ref KD p.467; 433,353]

Naltrexone:

- Pure opioid antagonist devoid of agonistic activity.
- Recommended in alcohol dependence by US-FDA as adjuvant in comprehensive treatment.
- Used for 'opioid blockade' therapy of post-addicts.
- Used to treat acute intoxication and maintenance therapy of opioid withdrawal. However, it can precipitate withdrawal symptoms.

62. Which of the following is/are cholinomimetic (Cholinergic) drug(s)?

a) Pilocarpine

b) Neostigmine

c) Bethanechol

d) Donepezil

e) Methacholine

Correct Answer - A:C:E

Ans. (A) Pilocarpine (C) Bethanechol (E) Methacholine [Ref KDT 7/e p. 104; Katzung 11*/e p. 98]

- Cholinergic drugs may be divided into : (i) Directly acting, and (ii) Indirectly acting (anticholinesterase).

Directly Acting:

- With muscarinic action: Acetylcholine, methacholine, carbachol, bethanechol, pilocarpine, muscarine, arecholine
- With nicotinic action :- Acetylcholine, carbachol, arecholine (these three drugs have both muscarinic and nicotinic effects).

Indirectly Acting (Anticholinesterase):

- Two types
- **Carbamates:** Physostigmine, Pyridostigmine, Ambenonium, Galantamine, Neostigmine, Edrophonium, Donepezil, rivastigmine.
- **Organophosphates:** Echothiophate, Diazinon.

63. True about Carvedilol ?

a) al blocker

b) 31 blocker

c) 32 blocker

d) Antioxidant

e) Used in hypertension

Correct Answer - A:B:C:D:E

Ans. (A) al blocker (B) 31 blocker (C) 32 blocker (D) Antioxidant (E) Used in hypertension

Carvedilol:

- β1 + β2 + α1 adrenoceptor blocker with α-β blocking property of 1:9.
- Antioxidant and antimitotic ProPerty.
- Produces peripheral vasodilation due to α-1 blockade as well as calcium channel blockade (direct effect).
- Cardioprotective in CHF.
- Causes orthostatic hypotension.

64. Interferon-alpha is used in the treatment of ?

a) Hepatitis B

b) Hepatitis C

c) Multiple sclerosis

d) Chronic granulomatous disease

e) Multiple myeloma

Correct Answer - A:B:C

Ans. (A) Hepatitis B (B) Hepatitis C (C) Multiple sclerosis

[Ref. KDT P. 501, 802; Clinical pharmacologist P. 712]

Uses of interferon-α are:

. CML
. Non-Hodgkin's lymphoma & cutaneous T-cell lymphoma
. Hairy cell leukemia
. Multiple myeloma
. AIDS related Kaposi sarcoma
. Chronic Hepatitis B & C
. HSV, HZV & CMV infection
. Rhinoviral cold
. Condyloma acuminata (HPV)
. Malignant melanoma
. Renal cell carcinoma

65. True about bedaquiline is ?

a) Not to be used in single line therapy

b) To be used in case of resistance to streptomycin

c) New unique antimicrobial introduced

d) Bactericidal drug

e) Used in TB resistant to rifampicin & isoniazide

Correct Answer - A:C:D:E

Ans. (A) Not to be used in single line therapy (C) New unique antimicrobial introduced (D) Bactericidal drug (E) Used in TB resistant to rifampicin & isoniazide

[Ref Katung 14/e p. 849; Lehn's Pharmacology ip. l081]

Bedaquiline (sirturo):

- New antitubercular drug
- Treatment of mulit-drug resistant tuberculosis
- Works faster and better than all other anti-TB drugs.
- Tuberculocidal.
- By inhibiting ATP synthase.
- No cross - resistance.
- Pregnancy category B drug.

Uses:

- Combination therapy for multidrug resistance TB (i.e. resistance to rifampicin and INH).
- Not approved for treatment of latent TB, extrapulmonary TB or drug-sensitive TB.

Adverse Effects:

- Prolongation of QT interval.
- Hepatotoxicity.

66. Extensive drug resistance TB is defined as resistance to?

a) Amikacin

b) INH

c) Rifampicin

d) Pyrazinamide

e) Ciprofloxacin

Correct Answer - A:B:C:E

Ans. (A) Amikacin (B) INH (C) Rifampicin (E) Ciprofloxacin [Ref KDT 7th e p. 776]

Multidrug resistance (MDR) and extensive drug resistance (XDR) TB:

- MDR is defined as resistance to INH and rifampin with or without resistance to other drugs.
- XDR is defined as resistance to INH and rifampicin as well as to all fluoroquinolones and one of injectable drugs (capreomycin, kanamycin, amikacin).

67. Alternative to rifamicin based treatment of leprosy in patient with hepatitis?

a) Clofazimine

b) Ofloxacin

c) Minocycline

d) Clarithromycin

e) Moxifloxacin

Correct Answer - A:B:C:D

Ans. (A) Clofazimine (B) Ofloxacin (C) Minocycline (D) Clarithromycin

- The World Health Organization (WHO) and the Indian Association of leprologists have recommended an alternative combination therapy of Clarithromycin, ofloxacin anil clofazimine to be prescribed in such cases.
- Minocycline can be used as an alternative to clarithromycin (i.e., minocycline, ofloxacin & clofazimine).

68. Anticancer drug(s) which does/do not suppress bone marrow ?

a) 5-FU

b) Cisplatin

c) Chlorambucil

d) Vincristine

e) Vinblastine

Correct Answer - D

Ans. D. Vincristine

[Ref: Katzung p. 951-952]

Anticancer drugs with bone marrow sparing effect:

- Vintistine
- Bleomycin
- Asparaginase

69. A patient has platelet count <1 lakh, hemoglobin 8gm, which of the following anticancer drug can be used in him ?

a) Cisplatin

b) Methotrexate

c) Vincristine

d) Vinblastin

e) Dleomycin

Correct Answer - C:D

Ans. (C) Vincristine (D) Vinblastin

- Vincristine and bleomycin are bone marrow sparing drugs - can be used in anemia and thrombocytopenia.

70. Which of the following drug(s) can cause diarrhea?

a) Zinc

b) Ampicillin

c) Magnesium hydroxide

d) Aluminium hydroxide

e) None

Correct Answer - B:C

Ans. (B) Ampicillin (C) Magnesium hydroxide

Drugs causing diarrhea:

- Broad spectrum antibiotics Digitalis Lactose
- OCP
- clindamycin
- Magnesium antacids
- Lincomycin
- Purgative
- Cocaine
- Donepezil
- Methyldopa
- Reserpine
- Colchicine Guanethidine
- Misoprostol
- Ticlopidine
- AmPicillin

71. Selective norepinephrine (noradrenergic) reuptake inhibitor(s) is/are?

a) Fluoxetine

b) Desipramine

c) Imipramine

d) Doxepin

e) Amoxapine

Correct Answer - B:E

Ans. (B) Desipramine (E) Amoxapine

Selective noradrenergic reuptake inhibitors (SNARIs)

- Antidepressants which have high selectivity for noradrenergic reuptake inhibitor over serotonin reuptake inhibition.
- This group also includes the TCAs with predominant NA reuptake inhibitory action.
- Examples are - **Desipramine, Nortriptyline, protriptyline, Amoxapine, Reboxetine, Atomoxetine, maprotiline.**

72. Management of NSAIDs toxicity include -

a) Sodium bicarbonate

b) Diazepam

c) Phenobarbitone

d) Hemodialysis

e) NH4C1

Correct Answer - A:B:C:D

Ans. (A) Sodium bicarbonate (B) Diazepam (C) Phenobarbitone (D) Hemodialysis

[Ref, Principles of emergency medical care p. 301]

- Ibuprofen is the most commonly used NSAIDs taken in overdose followed by naproxen.
- **In acute overdose, activated charcoal can be used as mechanical antidote.**
- **Vomiting should be induced by Ipecac syrup**, if the ingestion occurred within minutes of arrival.
- **For dehydration oral or intravenous fluid** should be given.
- Metabolic acidosis will often respond to fluid resuscitation/ IV sodium bicarbonate.
- Convulsions are managed with IV benzodiazepines (diazepam, lorazepam). Phenobarbitone is second choice if convulsions are not controlled by BZDs.
- Proton pump inhibitors (omeprazole etc) can be given for persistent upper GI Symptoms.
- Intubation may be required for airway protection due to coma or prolonged uncontrolled convulsion activity.
- Thiopentone is the DOC in these conditions.

73. True about first order kinetics of elimination -

a) Constant amount of drug is eliminated

b) Rate of elimination is not related to plasma concentration

c) Clearance remains constant

d) Half life decreases with decreased concentration

e) None

Correct Answer - C

Ans. C. Clearance remains constant [Ref KDT p. 30]

First order kinetics:

- Rate of elimination is directly proportional to Plasma Concentration.

Clearance remains constant -

- Due to increasing plasma concentration, increases the rate of elimination proportionately.
- (CL = rate of elimination / Plasma Conc).

Half life remains constant -

- Due to time required to reduce plasma concentration to half is same (rate of elimination
- change proportionately with plasma concentration).

74. Antibiotic(s) that require dose reduction in renal failure?

a) Amikacin

b) Amphotericin B

c) Doxycycline

d) Rifampicin

e) Ceftriaxone

Correct Answer - A:B

Ans. (A) Amikacin (B) Amphotericin B

[Ref: Essentials of Pharmacology p 131]

Antimicrobials given after dose reduction:

- Aminoglycosides
- Ethambutol
- Quinolones (except Grepa & trovafloxacin)
- Cephalosporins (except cefoperazone & ceftriaxone)
- Vancomycin
- Amphotericin B

Antimicrobials contraindicated:

- Nitrofurantoin
- Nalidixic acid
- Cephalothin & cephaloridine
- Tetracyclines (except doxycycline)
- Methanamine

75. True about sugamadex is/are -

a) It is a SRBA

b) Used to reverse rocuronium blockade

c) Used to reverse NM blockade

d) Use to reverse Sch blockade

e) Used in malignant hyperthermia

Correct Answer - A:B:C

Ans. (A) It is a SRBA (B) Used to reverse rocuronium blockade (C) Used to reverse NM blockade

[Ref KDT e p. 355; Essentials of pharmacology p. 113]

Sugammadex:

- Neuromuscular reversal drug,
- 1st in a new class of selective relaxant binding agent (SRBA) or steroidal muscle relaxant encapsulators (SMRE).
- Modified y-cyclodextrin with high affinity for aminosteroid non-depolarizing muscle relaxants rocuronium and vecuronium.
- Used to reverse neuromuscular block produced by rocuronium and vecuronium (rocuronium > vecuronium).
- Acts by forming a complex with muscle relaxant (rocuronium or vecuronium).

76. 13 agonists are preferred over other sympathomimetic drugs for -

a) Asthma

b) Uterine relaxation

c) Nasal decongesents

d) Orthostatic hypotension

e) Glaucoma

Correct Answer - A:B

Ans. (A) Asthma (B) Uterine relaxation

- Clonidine and methyldopa are used in hypertension.
- Other uses of clonidine are (i) preanaesthetic medication, (ii) diarrhea in diabetic neuropathy, (iii) analgesic, (iv) withdrawal syndrome of opoid, alcohol and nicotine, (v) prophylaxis of migrain,
(vi) postmenopausal syndrome, (vii) suppression test for pheochromocytoma, and (viii) for treatment of ADHD.

77. Which of the following joint is best predictor of age of 16-17 year by X-ray:

a) Knee

b) Elbow

c) Hip

d) Wrist

e) Ankle

Correct Answer - D:E

Ans: (D) Wrist (E) Ankle [Ref Reddy 32nd/78, 77, 74; Parikh 7th/ 61-63]

For estimation of age: Take X-ray

- **6-12 years** Elbow joint, Wrist joint, 6 yr- center for lower end of ulna (A); medial epicondyle of the humerus (A)
- **9 years:** Olecranon (A)
- **9 to 11 years:** Trochela of humerus (A)
- 10th **to 11th year:** Pisiform (A)
- **11th year:** Lateral epicondyle of humerus (A)
- **13 to 16 years:** X-ray of pelvis elbow joint &pelvis (13thyr -separate centers in triradiate cartilage of acetabulum (A)
- 12 **to 14 years:** Lesser trochanter of femur (A)
- **14th year:** Crest of ilium (A), fusion of medial epicondyle of humerus, lateral epicondyle with trochlea
- **15th year: fusion** of triradiate cartilage of acetabulum
- **16-17 year: wrist**
- **Crest of ilium: 18-19.**
- **Ischeal tuberostty,clavicle(inner end):** 21-22(F), 23-24(M)

78. Gustafson's method is used for -

a) Age determination

b) Sex determination

c) Race determination

d) Teeth attrition

e) Teeth resorption

Correct Answer - A:D:E

Ans. is 'a' i.e., Age determination; 'd' i.e., Teeth attrition; `e' i.e., Teeth resorption *[Ref Parikh 6th/e p. 2.8]*

- Gustafson's method : Useful only in persons older than 21 years of age, depending on the physiological changes in each of the dental tissues
- Attrition - due to wear and tear from mastication, upper surface of teeth destoyed gradually, first involving the enamel —> dentine —> pulp (depending on the functional use of teeth and hardness of enamel). AO - no change. A - minimum change (enamel), A2 - moderate change (dentine), A3 - maximum change (pulp).
- Paradentosis - recession of gums and periodontal tissue surrounding the teeth, exposing the neck and adjacent part of root —> teeth fall off (poor hygiene increases paradentosis).
- Secondary dentine formation - develop within the pulp cavity and decrease size of the cavity, start from base - apex, obliterate the cavity, increase with age, caries and paradentosis.
- Cementum apposition - near the end of root, increase cementum, increase thickness, deposited throughout life, and form incremental lines (devised by Boyde).
- Root resorption - because of cementum and dentine, absorption of

root start at apex and extend upward (may be pathological).
. Transparency of the root - seen after 30 years of age, canal in the dentine at first widen, increase with age because of deposition of minerals. They become invisible and dentine becomes transparent (Most reliable of all the criteria).

79. Which of the following is NOT rape:

a) Sexual intercourse with wife, of age below 15 year, with consent

b) Sexual intercourse with wife, of age 16 year, with consent

c) Sexual intercourse with a girl below 18 years of age, with consent

d) Sexual intercourse with a girl of 18 year with consent

e) Sexual intercourse with wife who is living separately from him under a decree of separation, or any custom or usage with her consent

Correct Answer - B:D:E

Ans: b. Sexual intercourse with..., d. Sexual intercourse with a girl..., e. Sexual intercourse with wife who is living ..... *[Ref Reddy 32nd/ 392-95; Parikh 7th/389-911*

Rape: The Criminal Law (Amendment) Bill, 2013 (5.375, I.P.C)

- Acc to Gazette Notification of GOI regarding Criminal Law (amendendment) Act, 2013 released on 2 april, 2013, 1t is age 15 year .
- **Exception to S. 375, I.P.C: Sexual intercourse or sexual acts by a man with his own wife, the wife not being under 15 years.**
- There is controversial reference regarding age of wife, either 16 or 15 year in Reddy (old & new ed.) & Parikh.
- *With her consent, when the man knows that he is not her husband and that her consent is given because she believes that he is another man to whom she is or believes herself to be lawfully married.*
- *With her consent when, at the time of giving such consent, by*

reason of unsoundness of mind or intoxication or the administration by him personally or through another of any stupefying or unwholesome Substance, she is unable to understand the nature and consequences of that to which she gives consent.

- *With or without her consent, when she is under eighteen years of age.*
- *When she is unable to communicate consent*

80.

Unnatural Sexual offences are defined by section ?

a) 375 IPC

b) 320 IPC

c) 377 IPC

d) 302 IPC

e) None

Correct Answer - C

Ans is 'c' i.e., 377 IPC *[Ref Parikh Ole* p. *3-68]* **IPC retated to sexual offences]**

- **228 IPC :** Prohibits disclosure of identity of rape victim.
- 375 IPC : Defining rape.
- 376 IPC : Punishment for rape (7 years to life imprisonment ± fine).
- 376-A IPC : Punishment for marital rape (2 years imprisonment ± fine).
- 377 IPC : Unnatural sexual offences (10 years to life imprisonment ± fine).
- 354 IPC : Assault or criminal force to woman with intent to outrage her modesty.
- 366-A IPC : Procuration of minor girl for illicit intercourse.
- 351 IPC : **Defines assault.**
- 352-358 IPC : Punishment for causing assault.
- 509 IPC : **Word, gesture or act intended to insult the modesty of a women.**

81.

Sodomy is punishable under section IPC ?

f) 354

g) 375

h) 377

i) 378

j) None

Correct Answer - C

Ans is 'c' i.e., 377 *[Ref Parikh 6"Ve* **p.** *3.68]*

- Section 377 IPC defines all unnatural sexual offences (including sodomy).
- **Section 377 IPC** defines **unnatural sexual sexual offences** as sexual intercourse against the order of nature with any man, woman or animal and lays down punishment for same. These offences are **sodomy, buccal coitus,** tribadism (lesbianism), and bestiality.

82. Spalding sign is a feature of -

(E) Drowning

(F) Intrauterine death

(G) Maceration

(H) Rigor mortis

(I) Aseptic autolysis

Correct Answer - B:C:E

Ans is 'b' i.e., Intrauterine death; 'c' i.e., Maceration; `e' i.e., Aseptic autolysis [Ref Parikh 6th ie p. 5-75, 5-76]

Maceration:

- Maceration is a process of aseptic autolysis. It occurs when a dead fetus remains in the uterus for 3-4 days surrounded by liquor amnii but with exclusion of air.
- Skin slippage is the earliest sign (occurs within 12 hours).
- There is gas in the great vessels and chambers of heart (Robert's sign). Except for lung and uterus, which remain unchanged for a long time, all other organs become soft, oedematous and loose their morphology.
- The one important radiological sign suggestive of maceration is 'Spaulding's sign' i.e. skull bones override each other. The smell is somewhat rancid.

Rigor mortis:Rigor mortis may occur in dead fetus before birth or at birth.

Putrefaction (decomposition) : If the membranes are ruptured after death of fetus and air gains entry into liquor amnii, fetus undergoes putrefaction instead of maceration. Body is greenish, foul smelling and bloated

83. Extent of Burn is calculated by ?

16. Rule of 9

17. Wallace's formula

18. Lund and Browder chart

19. Henery's formula

20. None

Correct Answer - A:B:C

Ans. is *'a' i.e.,* Rule of 9, `b i.e., Wallace's formula; 'c' i.e., Lund and Browder chart *[Ref Parikh &Ie p. 4-152-4-156]*

In adults surface area is calculated by :

f) 9% for the head and neck.
g) 9% for each upper limb.
h) 9% for the front of each lower limb.
i) 9% for the back of each lower limb.
j) 9% for the front of the chest.
k) 9% for the back of the chest.
l) 9% for the front of the abdomen.
m) 9% for the back of the abdomen.
n) 1% for the genitalia.

- Area of palm (palmar surface), as a general rule, constitues about 1% of surface area both in adult and children.
- In burnt area >15% in adults and >10% in a child, the loss of circulatory blood volume must be replaced, otherwise it will cause irreversible shock.
- Burns on head, neck, trunk and genitals are said to be more dangerous than on other parts of the body.
- Infants, young children and elderly are particularly vulnerable to

initial shock and subsequent complications.

84. True about tapeworm is/are -

(D) Taenia saginata is beef tapeworm

(E) Taenia solium is more prevalent

(F) Infection is acquired by ingestion of cysticercus in raw *beef*

(G) Infectious form to animal is egg

(H) None

Correct Answer - A:C:D

Ans. is 'a' i.e., Taenia saginata is beef tapeworm; 'c' i.e., Infection is acquired by ingestion of cysticercus in raw beef;`d' i.e., Infectious form to animal is egg *[Ref Medical microbiology E-book 215]*

Two species of Taenia infect man *:?*

f) Taenia saginata : The beef tapeworm.

g) Taenia solium : The pork tapeworm.

Mode of infection of tapeworms

h) T. saginata - Under cooked beef containg cysticercus bovis.

i) T. solium Undercooked pork containg cysticercus cellulosae & rarely by ingestion of egg (autoinfection).

- Occasionally man gets infected in the same way as pig, by ingestion of eggs (either by drinking contaminated water or by eating uncooked vegetables infected with eggs). In this cycle man acts both as definitive as well as intermediate host.

(D) Most common cause of non-gonococcal urethritis -

18. Mycoplasma hominis

19. Mycoplasma genitalium

20. Ureoplasma urealyticum

21. Chlamydia trachomatis

22. Haemophilus ducrey

Correct Answer - D

Ans. is 'd' i.e., Chlamydia trachomatis ***[Ref: Essentials of microbiology 3rd le*** **p.** ***786]***

Gonococcal urethritis	**Nongonococcal**
Neisseria gonorrhea	Chlamydia Trachomatis (most common) Ureoplasmaurealyticum Mycoplasmagenitalium Bacterioides Haemophilus species Candida albicans T.vaginalis

86. Lesions caused by spirochetes are -

f) Syphilis

g) Yaws

h) Legionella pneumonia

i) Pinta

j) Lyme's disease

Correct Answer - A:B:D:E

Ans. is 'a' i.e., Syphilis; 'b' i.e., Yaws; 'd' i.e., Pinta; 'e' i.e., Lyme's disease

- Spirochetes are elongated, spirally coiled, flexible bacteria.
- Characteristic feature of spirochetes is presence of endoflagella which do not protrude outside.
- Pathogenic spirochetes belong to three genera : Treponema, Borrelia And Leptospira.

Spirochete species		disease
Treponema	Pallidum	Syphilis
	Endemicum	Bejel
	Pertunae	Yaws
	Carateum	Pinta
Borrelia	Burgdorferi	Lyme disease
	Recurrentis	Relapsing fever
	Vincenti	Vincent angina
Leptospira	Interrogans	Weil's disease

87. True about streptococcus agalactiae -

f) Catalase positive

g) Catalase negative

h) Beta hemolytic

i) Alpha hemolytic

j) Bacitracin resistant

Correct Answer - B:C:E

Ans. is 'b' i.e., Catalase negative; 'c' i.e., Beta hemolytic; 'e' i.e., Bacitracin resistant

- Streptococcus agalactiae is bacitracin resistant. Only streptococcus sensitive to bacitracin is streptococcus pyogenes.
- Sensitivity to bacitracin is employed as a convenient method for differentiating str. pyogenes from other hemolytic streptococci (Maxted's observation).
- Streptococcus agalactiae (also known as group B streptococcus or GBS) is a gram-positive coccus (round bacterium) with a tendency to form chains (as reflected by the genus name Streptococcus). It is a beta-hemolytic, catalase-negative, and facultative anaerobe.

88. True about cellulitis Vs erysipelas -

20. Cellulitis is deep

21. Erysipelas is deep

22. Both caused by streptococcus pyogenes

23. Cellulitis starts abruptly

24. Erysipelas starts slowly

Correct Answer - A:C

Ans. is 'a' i.e., Cellulitis is deep; 'c' i.e., Both caused by streptococcus pyogenes ***[Ref Text book of Dermatology p. 1531***

- Erysepelas and cellulitis are caused mostly by streptococcus pyogenes
- Cellulitis affects the deeper loose subcutaneous tissue. As in any continum of disease, some overlap can occur. Despite their common etiology, significant differences in presentation, signs, and clinical course are noted.
- Almost all cases erysipelas are caused by Str pyogenes. Whereas cellulitis is caused most commonly by Str pyogenes, rarely it can also be caused by staphylococcus, Idebsiella, H influenzae

89. True regarding erysipelas are -

f) Caused by S pyogenes

g) Superficial skin lesion

h) More seen on face than trunk

i) Has history of recent sore throat infection

j) None

Correct Answer - A:B:C:D

Ans. is 'a' i.e., Caused by S pyogenes; 'b' i.e., Superficial skin lesion; 'c' i.e., More seen on face than trunk; i.d., Has history of recent sore throat infection *[Ref Text book* of *Dermatology p. 1531*

- Erysipelas is a superficial skin infection affecting upper dermis and extends into the superficial lymphatics.
- It is caused mostly by streptococcus pyogenes (group A Beta hemolytic streptococcus).
- Symptoms and signs of erysipelas are usually abrupt in onset and often accompanied by fevers, chills and shivering.
- Erysipelas predominantly affects the skin of the lower limbs, but when it involves the face it can have a characteristic butterfly distribution on the cheeks and across the bridge of the nose.
- The affected skin has a very sharp, raised border.
- It is bright red, firm and swollen. It may be finely dimpled (like an orange skin).
- It may be blisthered, and in severe cases may become necrotic.
- Bleeding into the skin may cause purpura.

f) Most common route of transmission of tuberculosis to neonate -

f) Aerosol infection

g) Skin contact

h) Transplacental infection

i) Venous route

j) Haematogenous infection

Correct Answer - C:D:E

Ans. is 'c' i.e., Transplacental infection; 'd' i.e., Venous route; 'e' i.e., Haematogenous infection *[Ref Clinical neonatology 4th ie p. 153]*

Transplacental spread:

- It is the most common mode of transmission
- Tubercle bacilli cross the placenta through the umbilical vein and a primary focus develops in the fetal liver with involvement of periportal lymph nodes and the bacilli infect secondarily the lung.
- It is a hematogenous infection and is called congenital infection by vertical transmission of TB.

Aspiration or ingestion

- Neonate may acquire the disease in utero or during child birth (intrapartum) by aspiration or ingestion of infected aminiotic fluid.
- It causes primary infection of fetal lungs and gut.

23. Incorrect statement(s) regarding HPV is are -

f) DNA virus

g) RNA virus

h) 16, 18 types cause carcinoma

i) Verrucus vulgaris is most common

j) Recently approved vaccine is trivalent

Correct Answer - B:E

Ans. is 'b' i.e., RNA virus; 'e' i.e., Recently approved vaccine is trivalent

- HPV is a non-enveloped DNA virus (ds DNA), belongs to Papovaviridae.
- HPV selectively infects the epithelium of skin and mucous membrane and may immortalize the keratinocytes leading either asymptomatic infection, or warts or neoplasia.
- Products of E-genes (E6, E7) are related to immortalization or malignant transformation of keratinocytes by interfering with p53 and Rb genes, respectively.
- HPV infects only human skin and grows only in organ cultures of human skin.
- Warts are benign extra growth of skin and mucous membrane resulting from infection with human papilloma virus (HPV). They are common in children and young adults

There are two types of HPV vaccines :-

- **Quadrivalent** :- containing HPV types 6,11,16,18
- **Bivalent** :- containing HPV types **16,18**

- Efficacy of vaccine has varied according to immunologic and virological characteristics of study populations at baseline and according to the endpoints evaluated. Most of the time, rates of vaccine efficacy exceed 90%.
- Vaccine is recommended for girls and young women 9-26 years of age.

92. Correct about adenovirus -

. Causes conjunctivitis

. Diarrhea is caused by serotype 40

. Single stranded DNA virus

. Causes intussusception

. Type 14 causes most severe disease

Correct Answer - A:B:D:E

Ans. is 'a' i.e., Causes conjunctivitis; 'b' i.e., Diarrhea is caused by serotype 40; 'd' i.e., Causes intussusception & `e' i.e., Type 14 causes most severe disease.

- Non-enveloped, DNA (ds DNA) Virus
- Has characteristic morphology consisting of an icosahedral shell composed of 20 equilateral triangular faces and 12 vertices -3 space vehicle appearance.
- Human adenovirus **grows only in tissue culture of human origin,** such as human embryonic kidney, HeLa or HEP-2.
- Cytopathic effects in tissue culture ---> cell rounding and aggregation into **grape like clusters.**
- Adenovirus has been used as a vector for gene therapy.
- Adenovirus cause infections of the respiratory tract and eyes and less often of the intestine and urinary tract.
- Most frequently affect infants and children
- Most common manifestation in children is an acute upper respiratory tract infection with prominent rhinitis.
- Most common manifestation in adult ARDS.
- Adenovirus serotype 14 has been associated with severe and potentially fatal outbreak of pneumonia.

. **All are true about Ebola virus infection except?**

f) Air dropler is most common mode of transmission

g) Haemorrhagic manifestation may occur

h) Thai forest type - most common species in epidemics

i) presents as sudden onset of fever and sore throat

j) Case fatality rate may be high as 70%

Correct Answer - A:C

Ans. is 'a' i.e., Air dropler is most common mode of transmission & 'c' i.e., Thai forest type - most common species in epidemics]Ref *Park 24^{m}/e* p. *374]*

- The virus is transmitted through direct contact with blood, organs, body secretions or other body fluids of infected animals like chimpanzees, gorillas, monkeys, fruit bats etc.
- Human to human transmission is through blood or body fluids of an infected symptomatic person or through exposure to objects (such a needle) that have been contaminated with infected secretions.
- It is not transmitted through air, water, or food.
- The virus is transmitted through direct contact with blood, organs, body secretions or other body fluids of infected animals like chimpanzees, gorillas, monkeys, fruit bats etc.
- Human to human transmission is through blood or body fluids of an infected symptomatic person or through exposure to objects (such as needle) that have been contaminated with infected secretions
- It is not transmitted through air, water, or food
- The illness is characterized by sudden onset of fever, intense

weakness, muscle pain, headache, sore throat, vomiting, diarrhea, rash, impaired kidney and liver function and in some both internal and external bleeding.

- **The virus family Filoviridae includes three genera: Cuevavirus, Marburgvirus, and Ebolavirus.**
- **Within the genus Ebolavirus, five species have been identified: Zaire, Bundibugyo, Sudan, Reston and TalForest.**
- **The first three, Bundibugyo ebolavirus, Zaire ebolavirus, and Sudan ebolavirus have been associated with large outbreaks in Africa.**

94. CD marker on natural killer cells ?

. CD-16

. CD-56

. CD-3

. CD-4

. CD-8

Correct Answer - A:B:C

Ans. is 'a' i.e.,CD-16; `b' i.e., CD-56; 'c' i.e., CD-3 ***[Ref Anantanarayan S^{o}le p. 137; Harrison 19th/e p. 372]***

- Null cells are called so because they lack features of surface markers of both B and T lymphocytes. The account for 5 to 10% of peripheral blood lymphocytes.
- They are also called *"large granular lymphocytes (LGL)"* as they contain large *azurophilic cytoplasmic granules.* They express CD16 and CD56 markers. They *proliferate in response to IL-2.*
- LGLs arise in *both bone marrow and thymic microenvironment.* In contrast to T-cells, they are *not MHC restricted.*
- NK-cells are *positive for CD16 and CD56.*
- NK cells are usually *negative for CD3,* but a *subset is positive for CD3* called NK/T-cells.
- *IL-2* acts as a growth factor for NK cells. NK cells activity is augmented by interferon. NK cells secrete peroforin (resembles comlement C9) which causes transmembrane pores through which cytotoxic factors (e.g. TNF-(3) enters the cells and induce apoptosis.

. **Deficiency of both B and T lymphocytes is seen in ?**

25. Wiskott Aldrich syndrome

26. Digeorge syndrome

27. Ataxia telangiectasia

28. Common variable immunodeficiency

29. Chronic mucocutaneous candidiasis

Correct Answer - A:C

Ans. is 'a' i.e., Wiskott Aldrich syndrome; 'c' i.e., Ataxia telengectasia [Ref Atlas of immunology p. 537]

Combined immunodeficiencies (B and T cell defects)

- Cellular immunodeficiency with abnormal immunoglobulin synthesis (Nezelof syndrome)
- Ataxia telangiectasia
- Wiskott-Aldrich syndrome
- Immunodeficiency with thymoma
- Immunodeficiency with short-limbed dwarfism 0 Episodic lymphopenia with lymphocytotoxin
- Severe combined immunodeficiencies
- 'Swiss type' agammaglobulinemia
- Reticular dysgenesis of de Vaal

Adenosine deaminase (ADA) deficiency

96. True about treatment of leprosy ?

f) Multibacillary leprosy is treated by 3 drugs

g) Paucibacillary leprosy is treated by 1 drug

h) Paucibacillary leprosy is treated for 1 year

i) Post-treatment surviellance for multibacillary leprosy is for 5 years

j) Clofazimine is first line drug

Correct Answer - D:E

Ans- d) Post-treatment surviellance for multibacillaryleprosy is for 5 years; 'e' i.e., Clofazimine is first line drug *[Ref Harrison 19th Ie p. 11261 .*

- Paucibacillary : Bacteriological index is less than 2 with 5 or less skin lesions. It includes Borderline tuberculoid (BT), Tuberculoid (TT) and Indeterminate leprosy.
- Multibacillary : Bacteriological index is 2 or more with 6 or more skin lesions. It includes Borderline (BB). Borderline lepromatous (BL) and Lepromatous (LL) leprosy.

Drugs used for leprosy are :-

- First line : Rifampicin, dapsone and clofazimine.
- Other : Minocycline, Quinolones (oxacilin), ethionamide, clarithromycin, rifapentine and moxifloxacin.
- Rifampicin is the most active (rapidly acting and bactericidal drug) for leprosy

26. Painful penile ulcer with suppurative lymphadenopathy is seen in ?

f) Syphilis

g) Hard chancre

h) Soft chancre

i) Haemophilus ducreyi

j) Donovanosis

Correct Answer - C:D
Ans. is 'c' i.e., Soft chancre; 'd' i.e., Haemophilus ducreyi
Chancroid (Soft chancre), Haemophilus Ducreyi*, 1-14 days, ·
Painful non indurated ulcer (soft chancre), Painful lymphadenopathy

98. Not true about candida albicans -

. Dimorphic fungus

. Yeast like fungus

. Reynolds-Braude phenomenon

. Forms true hyphae

. Forms pseudohyphae

Correct Answer - A:B:C:D:E

Ans. is 'None' i.e., All options are correct [Ref Ananthnarayan Stile p. 607; Essentials of Microbiology p. 717

- Candida is a yeast like fungus.
  - All candida species pathogenic for humans are also encountered as commensals of humans, particularly in the mouth, stool and vagina.
- They grow rapidly on simple media as oval budding cells at 25° to 37°C.
- In tissue, both yeasts and pseudohyphae are present.
- Candida albicans is differentiated by other candida :
- It forms true hyphae (mycelia) or germ tubes when grown in serum.
- It forms thick walled large spores called chlamydospores when grown in corn meal agar.
- It is dimorphic. Candida albicans can produce yeast, true hyphae and pseudohyphae.
- A rapid method of identifying C. albicans is based on its ability to form germ tubes within two hours when incubated in human serum at 37°C —> Reynolds - Braude phenomenon (Also known as germ tube test).
- Candida yeast cells and pseudohyphae are the only fungi that are usually gram - positive on smears.

99. True about aspergillus infection -

. Forms hyphae

. Branched at 90°

. Nonseptate

. Septate

. Causes subcutaneous infections

Correct Answer - A:D

Ans. is 'a' i.e., Forms hyphae; 'd' i.e., Septate ***[Ref Ananthnarayan 8th/e p. 613; Harrison 19'Ve p. 1346]***

. **Which of the following Nanoparticle(s) inhibit both E coli and Staph aureus ?**

. Zinc oxide

. Silver nanoparticle (SNP)

. Copper oxide

. Aluminum oxide

. None

Correct Answer - A:C

Ans. is 'a' i.e., Zinc oxide; 'c' i.e., Copper oxide *[Ref Clinical Nanomedicine handbook]*

- A number of nanoscale metals, metal oxides, oral natural & synthetic polymers possers antimicrobial properties.
- ZnO → Staphylococcus, Escherichia coli
- ZnO ions→ Pseudomonas aeruginosa, S aureus Candida albleari
- SNP→ E. coli, Vibrio cholera, Salmonella lyphi, P. aeruginosa
- $Al_2 0_3$ →E. coli, B. subtilis, Pseudomonas fluorescens

27. True about six-sigma method in health care?

f) Used to Improve patient care

g) Requires four steps

h) It reduces patient dissatisfaction

i) Collect and analyze the data

j) Can be used for administration as well

Correct Answer - A:C:D:E

Ans. is 'a' i.e., Used to Improve patient care; 'c' i.e., It reduces patient dissatisfaction; 'd' i.e., Collect and analyze the data; & `e' i.e., Can be used for administration as well

[Ref www.villanovau.com]

- To help reduce waste and improve quality care, many hopitals and healthcare practices have adopted Six sigma management tools to help achieve goals. Employing Six Sigma principles in healthcare settings can help eliminate defects and variation in processes, and it can help make procedures more streamlined, less costly and help improve patient care.
- In healthcare environments a defect is defined as a factor that leads to patient dissatisfaction. Examples of defects range from
- the frustrating kind, such as a long wait to see a doctor, to the serious kind, such as an incorrect diagnosis or treatment. • Because patient care is hands-on, the possibility for variance is larger than in other process-driven industries. Variables may be small and difficult to quantify, but Six Sigma's data-driven approach can result in measurable improvement.

- Six-Sigma is a quality improvement methodology that applies statistics to measure and reduce variation in processes.
- It is an organizational philosophy in establishing the belief of 'doing things right first time and everytime'. It is 'a measure of quality that strives for perfection'. The term Six Sigma means 'standard deviation'.
- In Health care sector it is used for improving quality of health care services and reducing patient's dissatisfaction. It is used to reduce the errors and to move towards

102. all are Steps used in Six-sigma except -

28. Define

29. Analyze

30. Improve

31. Feed back

32. Control

Correct Answer - D

Ans- "D" Feed back

Six Sigma requires five steps for quality improvement?

f) **Define** -+ Define the problem, clarify and relate it to the custmer. Who are the patient's, and what they want? What are the objectives?

f) **Measure** → Measure your target metric and know your measure is good. What will improvement look line? On what data will our effect measured.

30. **Analyze** -+ Look for root cause and generate a prioritized listing of them → collect data and analyze using proven tools.

f) **Improve** → Determine and confirm the optimal solution → Implement modification to improve the process.

31. **Control** → Be sure the problem does not come back and sustain it Monitor performance to maintain improvement.

Popular outcomes from Six - Sigma

- Increased patient satisfaction and care, Fewer complaints, Increased prescription, accuracy, Reduced waiting time and variation, Safer and more efficient emergency services, Fewer medical errors defects, Increased physician satisfaction.

f) Causal association can be best established in -

32. RCT

33. Cohort study

34. Case control study

35. Ecological study

36. None

Correct Answer - A
Ans.'a'i.e.,RTC

- As a single study unit, double blind RCT is the best.
- However, overall meta-analysis is a better study since it combines the data from multiple RCT and also from other types of study.
- "Randomized controlled trials (RCT) provide the stongest, most relevant evidence to inform practice. Some evidence hierarchies place systematic review and meta-analysis above RCTs since these often combine data from multiple RCTs, and possibly from other study type as well" — Epitemiology at glance
- So, systematic review and meta-analysis of RCTs are best epidemiological studies

f) Which of the following is/are correct regarding Cohort study Vs Case-control study?

f) Case-control study is easy

g) Incidence is well calculated by case-control study

h) Cohort study can estimate both relative risk and attributable risk

i) Disease has not occured at start of cohort study

j) Cohort study is cheaper

Correct Answer - A:C:D

Ans. is 'a' i.e., Case-control study is easy; 'c' i.e., Cohort study can estimade both relative risk and attributable risk & 'd' i.e., Disease has not occured at start of cohort study.

	Case control study	**Cohort study**
1.	Proceeds from "effect to cause"	
2.	Starts with the disease	1. Proceeds from "cause to effect"
f)	Tests whether the suspected cause occurs more frequently in factor or suspected cause	2. Starts with people exposed to,risk
	those with the disease than	3. Tests whether disease occurs more among those without the frequently in those exposed, than in disease those not similar exposed.
35.	Usually the first approach to the precisely testing of a hypothesis, useful for exploratory studies	4. Reserved for testing of but also formulated hypothesis. 5. Involves larger number of subjects.
5.	Involves fewer number of subjects	6. Long follow-up period often needed, involving delayed results
6.	Yields relatively quick results	7. Inappropriate when the disease or

7.	Suitable for the study of rare diseases.		exposure under investigation is rare.
8.	Generally yields only estimate of RR	8.	Yields incidence rates, RR as well as AR (odds ratio)
9.	Cannot yield information about diseases other than that selected for study	9.	Can yield information about more than one disease outcome.
0.	Relatively inexpensive	10.	Expensive
1.	Chances of bias are more	11.	less bias

f) Correct regarding management of sewage -

36. Active sludge processing is no longer recommended

37. Sludge degradation involves both aerobic and anaerobic decomposition

38. Treated sludge is released into river water

39. The strength of sewage depends on biological oxygen demand

40. None

Correct Answer - C:D

Ans. is 'c' i.e., Treated sludge is released into river water; & 'd' i.e., The strength of sewage depends on biological oxygen demand [Ref: Park's 2e* p. 799-802]

- Sewage is waste water from community, containing solid and liquid excreta. It contains 99.9% water and 0.1% solids (organic and inorganic).
- 'Dry weather flow' is the average amount of sewage that flows in sewage system in 24 hours.
- The segregation of excreta by imposing a barrier is called "Sanitation barrier".
- BOD value ranges from about 1 mg per litre for natural waters to about 300 mg per litre for untreated domestic sewage.
- If the BOD is 300 mg/l and above, sewage is said to be strong; if it is 100 mg/l, it is said to be weak."

There are following methods of disposal of effluent?

f) Disposal by dilution : Disposal into water courses such as rivers and streams is called disposal by dilution.

37. Disposal on land : If suitable land is available the effluent can be used for irrigation purposes (e.g. Okhla sewage treatment plan in Delhi).

106. Post-exposure prophylaxis is given in -

f) Rabies

g) HBV

h) Influenza

i) Rubella

j) Measles

Correct Answer - A:B:E

Ans. is 'a' i.e., Rabies; 'b' i.e., HBV; & `e' i.e., Measles *[Ref Park's 22"die p. 149, 278]*

- Post-exposure prophylaxis refers to prophylactic measure taken after exposure to a pathogen, in order to prevent infection by the pathogen and development of disease.

Post-exposure immunization

- Here prophylactic vaccination is given after exposure. - Post-exposure immunization is given for varicella (chicken pox), rabies, hepatitis-B, measles, tetanus, and meningococcal meningitis.

Post-exposure chemoprophylaxis

- Here drugs are used for post-exposure chemoprophylaxis.
- It is used in HIV, Herpes, diphtheria, and meningococcal meningitis.

107. True about 90:90:90 strategy -

f) For HIV treatment

g) Targets for 2025

h) 90% of people with HIV infection will receive treatment

i) 90% of people with HIV infection will know HIV status

j) 90% of people with HIV infection will be prevented from TB infection

Correct Answer - A:C:D

Ans. is 'a' i.e., For HIV treatment; 'c' i.e., 90% people with HIV infection will receive treatment; & 'd' i.e., 90% people with HIV infection will know HIV status *[Ref: www.unaids.org]*

- In Dec. 2013, the UNAIDS programme Coordinating Board called on UNAIDS to support country-and region -led efforts to establish new targets for HIV treatment scale-up beyond 2015. In response, stakeholder consultations on new targets have been held in all regions of the world. At the global level, stakeholders assembled in a variety of thematic consultations focused on civil society, laboratory medicine, paediatric HIV treatment, adolescents and other key issues.
- Powerful momentum is now building towards a new narrative on HIV treatment and a new, final, ambitious, but achievable target:
- By 2020, 90% of all people living with HIV will know their HIV status.
- By 2020, 90% of all people with diagnosed HIV infection will receive sustained antiretroviral therapy.
- By 2020, 90% of all people receiving antiretroviral therapy will have viral suppression.

f) Biodegradable waste products, disposing in which of the colour code of the bags-

40. Blue

41. Black

42. Green

43. Yellow

44. None

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

f) True about National Programme For Control of Blindness is ?

41. Started in 1962

42. Apex National institute is located in AIIMS Delhi

43. Not to involve NGOS in the programme

44. Emphasis towards eye camp approach

45. Medical colleges as Tertiary centers

Correct Answer - B:E

Ans. is 'b' i.e., Apex National institute is located in AIIMS Delhi; f) 'e' i.e., Medical colleges as Tertiary centers *[Refi Park's 24th/e p. 458, 459]*

- NPCB was launched in 1976. India was the first country to launch a national level programme for blindness.
- Its objective was to reduce the prevalence of eye diseases in general and the prevalence of blindness from 1.40% to 0.3% by 2000 AD.
- It is a '100% centrally sponsored Programme'. The Apex centre (National Eye Institute) is Dr. Rajendra Prasad Centre for Ophthalmic Sciences, New Delhi, AIIMS.
- 'World Bank' provides assistance to NPCB for control of cataract, and also for assessment and aiding for development of funds. • To strengthen participation of Voluntary Organizations in the programme and to earmark geographic areas to NGOs and Government Hospitals to avoid duplication of effort and improve the performance of Government Units like Medical Colleges, District Hospitals, Sub Divisional Hospitals, community Health Centres,

Primary Health Centres etc.

f) True about WHO classification of Dengue fever ?

43. Dengue hemorrhagic fever I and 2 are Dengue shock syndrome

44. Dengue hemorrhagic fever-1 is characterized by platelet count <150000 cells/Cu mm

45. Dengue hemorrhagic fever-2 is characterized by Hematocrit increase >20%

46. Dengue hemorrhagic fever-4 is characterized by Hematocrit increase > 20%

47. Dengue hemorrhagic fever-4 is characterized by platelet count < 100000/Cu mm

Correct Answer - C:D:E

Ans. is *'c' i.e.,* Dengue hemorrhagic fever-2 is characterized by Hematocrite increase >20%; 'd' i.e., Dengue hemorrhagic fever-4 is characterized by Hematocrite increase > 20%; & 'e' i.e., Dengue hemorrhage fever-4 is characterized by platelet count…

- **DHF II**→ Above signs and symptoms plus some evidence of spontaneous bleeding in skin or other organs (black tarry stools, epistaxis, bleeding from gums, etc) and abdominal pain, Thrombocytopenia : Platelet count <100, 000/cu.mm. Haematorcit rise 20% or more
- **DHF IV**→ Signs as grade III plus profound shock with undetectable blood pressure or puls → Thrombocytopenia: Platelet count < 100,000/cu. Mm. Haemotocrit rise more than 20%.
- DHF III and IV are Dengue Shock Syndrome

111. True about influenza epidemiology -

f) It shows cyclic trend

g) Pandemic is caused by influenza-B virus

h) Major reservoir is human

i) Epidemics occur every 2-3 years

j) Pandemic influenza is defined as 25 suspect cases of H1N1

Correct Answer - A:D:E

Ans. is 'a' i.e., It shows cyclic trend; 'd' i.e., Epidemics occur every 2-3 years; & 'e' i.e., Pandemic influenza is defined as 25 Suspect cases of HiN, *[Ref: Park's 24th/e p. 163-164]*

- Influenza virus a RNA virus, belongs to orthomyxovirus.
- There are three viral subtypes : Type A (causes all pandemics and most epidemics); type **B;** and type C (not circulating currently).
- Currently the influenza viruses circulating in the world are : H, N, of type A (causes swine flu); H, N, of type A; H3 N, of type A ; 1-1, Ni of type A (causes bird flu or avian influenza); **H7** N, of type A (caused epidemic of avian influenza in China in 2013); and type B.
- Influenza shows cyclic trend with epidemic occurring every 2-3 years in case of influenza - A and every 4-7 years in case of influenza-B. Pandemics are caused by only influenza - A every 10-15 years.
- Influenza affects all ages and both sexes.
- Source of infection of influenza is a clinical case or subclinical case.
- Major reservoir of influenza virus exists in animals and birds.

Incubation period is 18-72 hours. Most of the infections are subclinical. Clinical cases present with cough, fever, myalgia and headache.

44. True about distribution of prevalence of goitre in school age children ?

f) >5% defined area as endemic

g) 5% - 19.9% is defined as moderate iodine deficiency

h) 20% is defined as severe iodine deficiency

i) 20-30% is defined as moderate iodine deficiency

j) None

Correct Answer - A:D

Ans. is 'a' i.e., >5% defined area as endemic; & 'd' i.e., 20-30% is defined as moderate iodine deficinecy ***[Ref Park 22"/e p. 578;*** **OP** ***Ghai p. 484]***

- Total goitre rate : Percentage of children aged 6-11 with palpable or visible goitre. This is an indicator of iodine deficiency, which causes brain damage and mental retardation.
- Goitre are classified as Not visible, palpable and visible as shown below.
- The term 'endemic goitre' refers to a total goitre rate of greater than 5 percent in a given community.

113. Screening is a type of ?

45. Primordial prevention

46. Secondary prevention

47. Primary prevention

48. Tertiary prevention

49. None

Correct Answer - B
Ans. is b i.e., Secondary prevention

f) For treatment of extended drug resistance which of the following drugs are used EXCEPT?

f) Rifampicin

g) INH

h) Moxifloxacin

i) Capreomycin

j) Clofazimine

Correct Answer - A

Ans. is 'A' Rifampicin*[Ref Park 24th/e p.199]*

- MDR-TB is defined as resistance to at least both INH and rifampicin. Previously it was classified as Category IV under DOTS (DOTS-PLUS).
- The treatment is given in two phases, the intestive phase (IP) and the continuation phase (CP). *The total duration of treatment for regimen for MDR-TB is 24-27 months,* depending on the IP duration

Regimen is :-

. Intensive phase (6-12 months) : *Seven drugs :* Capreomycin, PAS, moxifloxacin, high dose INH, clofazimine, Linezolid, amoxyclay.

f) Continuation phase (18 months) : *Six drugs :* PAS, moxifloxacin, high dose INH, clofazimine, linezolid, amoxyclay.

115. True about BCG vaccination ?

f) Usually given at birth

g) Can be given in pregnancy

h) Uses live attenuated vaccine

i) Immunodeficiency is a contraindication

j) Causes tuberculin test to become NEGATIVE

Correct Answer - A:C

Ans. is 'a' i.e, Usually given at birth; & 'c' i.e., Uses live attenuated vaccine [Ref Park 24thie p. 194-195].

- The vaccine is given by intradermal route, just above the insertion of deltoid (usually left side). Dose of vaccine is 0.1 ml for all age, with a strength of 0.1mg in 0.1m1. Vaccine is usually given at birth or at 6 weeks of age simultaneous with DPT and Polio.
- Duration of protection is around 15-20 years. Efficacy of protection varies for different diseases : for pulmonary tuberculosis it is zero, for severe forms of TB it is 0-80% (average 50%) and for leprosy it is 20-40% (note : BCG vaccination also gives some protection against leprosy).
- Storage - BCG vaccines are stable for several weeks at ambient temprature in tropical climate, and for upto 1 year. If kept away from direct light and stored in a cool environment. The vaccine must be protected from exposure to light during storage (wrapped up in double layer of red or black cloth.

116. COMBINED vaccines are available for

f) Hepatitis B

g) TAB

h) Pneumococcal vaccine

i) Typhoid

j) HPV

Correct Answer - A:B:D

Ans. is 'a' i.e., Hepatitis B; 'b' i.e., TAB; & 'd' i.e., Typhoid

[Ref Park's 23'/e p. 110; www.omicsonline.org]

- If more than one kind of immunizing agent is included in the vaccine, it is called a mixed or combined vaccine.
- The aim of combined vaccines is to simplify administration, reduce costs, minimize the number of contacts of the patient with the health system, reducing the storage cost, improving timelines of vaccination, and facilitating the addition of new vaccine into immunization programme.

The following are some of the well-known combination:

- DPT (Diphtheria-pertussis-tetanus)
- DT (Diphtheria-tetanus)
- DP (Diphtheria-pertussis)
- DPT and typhoid vaccine
- MMR (Measles, mumps and rubella)
- DPTP (DPT plus inactivated polio)
- Hepatitis A, and B
- Hepatitis A, and typhoid.
- DTwP (Diphtheria, tetanus, whole-cell pertussis)

. **True about Intrauterine contraception device is?**

a) Causes inhibition of ovulation

b) Copper-T is second generation IUD

c) Best time of insertion is Immediately after menstruation

d) Bleeding is common

e) Expulsion is more common with multiload-375

Correct Answer - B:C:D

Ans. is 'b' i.e., Copper-T is second generation IUD; 'c' i.e., Best time of insertion is Immdiately after mensturation; & 'd' i.e., Bleeding is common.

First generation

- These are *non-medicated and inert IUDs.* Examples are Lippes loop and Grafenberg's ring. **Second generation**
- These are medicated and bio-active IUDs. *Metallic ions* (Copper) are added to the device. Examples are Cu *T, CuT200, CuT-200B, CuT-200C, Nova-T, Multiload 375, Multiload 250, Cut-380A.*

Third generation

- These are also *medicated and bioactive IUDs.* These are hormone releasing IUDs e.g. *progestasert and LNG-20 (Mirena).*
- Life span of different IUDs is different. *CuT-380A has longest life span of 10 years.*
- Life span of different IUDs in descending order : Cu*T-380A (10 years) > Nova-T, Multiload-375 (5 years) and LNG-20/Mirena (5 years) > CuT - 200B (4 yars) > CuT - 200 (3 years) > progestasert (1 years).*

f) Objectives of National Health Policy-2017 -

51. Reduce IMR to 28 by 2019

52. Reduce MMR to 100 by 2020

53. Reduce Under five mortality to 20 by 2020

54. Reduce Neonatal mertality to 15 by 2020

55. Reduce TFR to 2·1 by 2025

Correct Answer - A:B:E

Ans. is 'a' i.e.,Reduce IMR to 28 by 2019; 'b' i.e., Reduce MMR to 100 by 2020; & 'e' i.e.,Reduce TFR to 2·1 by 2025 ***[Ref National Health Policy 2017 Document-Ministry of Health & Fantily Welfare]*** **National Health Policy 2017**

f) A lady on combined OCP forgot to take 3 consecutive pills in the first weak of pill cycle. What should be done?

(E) Has to take 3 pills immediately

(F) Should take next pill as per schedule

(G) Has to shift to IUCD

(H) Has to use barrier method for 7 days

(I) Use emergency contraceptives

Correct Answer - B:D:E

Ans. is 'b' i.e., Should take next pill as per schedule; 'd' i.e., Has to use barrier method for 7 days; & 'e' i.e., Use emergency contraceptives *[Ref: www.enpowerhealth.com]*

120. Vocal cord is supplied by -

52. Internal laryngeal nerve

53. Superior laryngeal nerve

54. Recurrent laryngeal nerve

55. Vagus nerve

56. Glossopharyngeal nerve

Correct Answer - A:B:C:D

Answer- (A) Internal laryngeal nerve (B) Superior laryngeal nerve (C) Recurrent laryngeal nerve (D) Vagus nerve

- The main cranial nerve innervating the larynx is the vagus nerve via its branches; superior laryngeal nerve (SLN) and
- Recurrent laryngeal nerve (RLN).
- Above the vocal cords the sensory innervation of larynx is via internal laryngeal nerve.

f) In bilateral recurrent laryngeal nerve paralysis, which of the following is/are is seen -

. Paramedian vocal cord

. Dyspnea is seen

. Stridor is seen

. No effect on voice

. Tracheostomy may be required

Correct Answer - A:B:C:D:E

Answer- (A) Paramedian vocal cord (B) Dyspnea is seen f) Stridor is seen (D) No effect on voice (E) Tracheostomy may be required

Bilateral RLN paralysis (Bilateral abductor paralysis)-

- This is the most dangerous paralysis as both the cords are in median or paramedian position ,obstructing the airway.
- There is dyspnea and stridor.
- Treatment
- Tracheostomy
- Lateralization of cord
- Kashima operation

f) True about tubercular otitis media are all except?

(F) Spreads through eustachian tube

(G) Causes painless ear discharge

(H) May cause multiple perforations

(I) Usually affects both ears

(J)None

Correct Answer - D

Answer- D. Usually affects both ears

- Tuberculosis of middle ear is a comparatively rare entity usually seen in association with or secondary to pulmonary tuberculosis, infection reaches the middle ear through eustachian tube.

Clinical features

- Generally, tuberculosis of middle ear is unilateral.
- It is characterized by painless otorrhoea which fails to respond to the usual antimicrobial treatment. There is painless watery otorrhea.
- Single or multiple perforation of tympanic membrane.

55. Clinical feature of facial palsy are all except -

f) Loss of forehead wrinkling

g) Difficulty in closing eye

h) Loss of taste sensation from tongue

i) Paralysis of stapedius muscle

j) Loss of Gag reflexes

Correct Answer - A:B:C:D

Answer- (A) Loss of forehead wrinkling (B) Difficulty in closing eye (C) Loss of taste sensation from tongue (D) Paralysis of stapedius muscle

Weakness of the muscle of the facial expression and eye closure

f) Absence of nasolabial fold
g) Wide palpable fissure
h) Epiphora
i) Drooping of angle of mouth
j) Loss of wrinkles of forehead
k) The face sags and is drawn across to the opposite side on smiling.
l) Voluntary eye closure may not be possible and can produce damage

57. Contraindication of cochlear implantation is/are -

f) Mondini deformity

g) Intracochlear ossification

h) Chronic suppurative otitis media

i) Agenesis of cochlear nerve

j) All

Correct Answer - C:D
Answer-(C) Chronic suppurative otitis media (D) Agenesis of cochlear nerve
Absolute
58. Active middle ear infection: ASOM, CSOM, mastoiditis
59. Agenesis of cochlea and/or Cochlear nerve
60. Mental retardion:Patient cannot cooperate with speech training

125. True about schwartz's sign -

f) Seen in otic capsule

g) Indicates active disease

h) Surgery is the Treatment

i) Causes sensory - neural deafness

j) More common in pregnancy

Correct Answer - A:B:C:D:E

Answer- (A) Seen in otic capsule (B) Indicates active disease f) Surgery is the Treatment (D) Causes sensory - neural deafness (E) More common in pregnancy

- Schwartz's sign, also known as Flemingo's flush sign or Rising sun sign is believed to be associated with otopongiosis which is the active phase of the disease, usually in pregnancy.
- Schwartz's sign which refers to a reddish discoloration over the Promontory seen beyond the intact tympanic membrane.
- surgery rernains a therapeutic option.

. **Ectopia lentis is associated with all except -**

f) Homocystinuria

g) Weil - Marchesani syndrome

h) Marfan syndrome

i) Cockayne syndrome

j) Osteogenesis imperfecta

Correct Answer - D:E

Answer- (D) Cockayne syndrome (E) Osteogenesis imperfecta

- More common:
- Marfan syndrome
- Homocystinuria
- Weil-Marchesani syndrome
- Sulfite oxidase deficiency
- Hyperlysinemia

127. Feature of mycotic corneal ulcer -

f) Feathery margins

g) Non-sterile hypopyon

h) Satellite lesions

i) Ulcer serpens

j) Deep involvement

Correct Answer - A:B:C:E

Answer- (A) Feathery margins (B) Non-sterile hypopyon (C) Satellite lesions (E) Deep involvement

- Greyish -white dry looking ulcer with the elevated rolled out feathery & hyphate margins.
- Feathery finger like extension into surrounding stroma under intact epithelium.
- A sterile immune ring (yellow line) of Wesseley.
- Multiple small satellite lesions.
- Non-sterile (infected) hypopyon (Pseudohypopyon) containing fungus.
- Perforation is rare and corneal vascularization is conspicuously absent

128. True about fundoscopic finding is/are

f) Lateral margin of optic disc is normally blurred

g) Optic disc is horizontally oval

h) Loss of spontaneaus retinal venous pulsation is seen in increased intracranial tension

i) Blurring starts from nasal margin in increased intracranial tension

j) None

Correct Answer - C:D

Answer- C,Loss of spontaneaus retinal... D,Blurring starts from nasal...

- Signs of papilloedema (increased intracranial tension)
- Blurring or obscuration of disc margin (First sign). Blurring starts at upper and lower nasal margins and extends around nasal side, while temporal margin is last to involve.
- Venous engorgment and venous congestion.
- There is filling of physiological cup with gradual obliteration ofphysiological cup.

129. Unilaterally dilated pupil is seen in

63. Homer's syndrome

64. Adie's pupil

65. Argyll Roberston pupil

66. 61h Cranial nerve palsy

67. 3rd nerve palsy

Correct Answer - B:E

Answer- B,Adie's pupil E,3rd nerve palsy

- Mydriatic eye drops (Atropine, scopolamine)
- Postganglionic mydriasis (Adie's pupil)
- Preganglionic mydriasis (3rd nerve palsy)
- Acute angle closure gloucoma
- Ocular Prosthesis
- Trauma : postraumatic iridocyclitis
- Physiological anisocor

130. Ocular findings in vitamin A deficiency

f) Parenchymatous conjunctival xerosis

g) X-2 is conjunctival xerosis

h) Earliest symptom is night blindness

i) Conjunctival xerosis is earliest ocular sign

j) All

Correct Answer - C:D

Answer- C,Earliest symptom is night blindness
D,Conjunctival xerosis is earliest ocular sign

- The most characteristic and specific signs of vitamin A deficiency are eye lesions.
- Xerophthalmia (dry eye)
- It has following sequential stages night blindness (earliest ocular symptom), conjunctival xerosis (earliest ocular sign), Bitot's spot, corneal xerosis and Keratomalacia with corneal ulcer.
- Xerosis of conjunctiva refers to a condition where the conjunctiva becomes dry and lusterless.

131. True about adenovirus conjunctivitis -

f) One of the most common cause of viral conjunctivitis

g) It is less contagious than other viral conjunctivitis

h) Pharyngoconjunctival fever is caused by 3 & 7 types

i) May cause hemorrhagic conjunctivitis

j) Conjunctival follicles

Correct Answer - A:C:D:E

Answer- A,One of the most common cause of viral conjunctivitis C,Pharyngoconjunctival fever is caused by 3 & 7 types D,May cause hemorrhagic conjunctivitis E,Conjunctival follicles

- Viral conjunctivitis is most frequently caused by an adenovirus.
- Pharyngoconjunctivial fever (PCF) is caused by adenovirus serovars 3,4 and 7.
- The spread of this highly contagious disease is facilitated by the ability of viral particles.
- Prominent conjunctival hyperaemia and follicles.

Severe inflammation maybe associated with conjunctival heamorrhages (usually petechial in adenoviral infection), Chemosis,membranes (rare) and pseudomembranes.

132. True about discharge from eye

(F) Epiphora is due excessive secretion of tear

(G) Mucopurulent discharge in acute conjunctivitis

(H) Mucopurulent discharge in acute iridocyclitis

(I) Watery discharge in acute congestive glaucoma

(J)None

Correct Answer - B:D

Answer- B,Mucopurulent discharge in acute conjunctivitis D,Watery discharge in acute congestive glaucoma

Acute conjuctivitis-

- Discharge- Mucopurulent
- Coloured halos- May be present

Acute iridocylitis-

- Discharge- Watery
- Coloured halos- Absent

Acute congestive glucoma-

- Discharge- Watery
- Coloured halos- Present
- Obstruction to the outflow of normally secreted tears or due to lacrimal pump failure --> Epiphora
- Excessive secretion of tears → hyperlacrimation

65. Which of the following is/are primary glaucoma

f) Infantile glaucoma

g) Open angle glaucuma

h) Steroid induced glaucoma

i) Aphakic glaucoma

j) Phacogenic glaucoma

Correct Answer - A:B

Answer- A,Infantile glaucoma B,Open angle glaucuma Primary adult glaucomas

- Primary open angle glaucoma
- Primary angle closure glaucoma
- Primary mixed mechanism glaucoma
- Primary congenital / developmental (without associated anomalies):- Congenital, Infantile,Juvenile

134. Cause(s) of cystoid macular edema is/are

. Diabetes mellitus

. After cataract surgery

. Retinitis pigmentosa

. Rheugmatogenous retinal detachment

. Pilocarpine drop

Correct Answer - A:B:C

Answer- A,Diabetes mellitus B,After cataract surgery C,Retinitis pigmentosa

Causes of macular edema are-

- Metabolic alteration: - Diabetes, retinitis pigmentosa , Inherited cystoid macular edema (CME).
- Ischemia; - CRVO, Diabetic retinopathy, severe hypertensive retinopathy, HELLP syndrome, vasculitis.
- Mechanical force : - Vitreous traction on the macula.
- Inflammation : - Intermediate uveitis, Post-operative CME, choroidal inflammatory diseases.
- Pharmacotoxicity: - Epinephrine (in Aphakia), Betaxolal, Latanoprost.

f) Restrictive lung disease differs from obstructive lung disease by

67. Decreased FVC

68. Decreased FEV1

69. Decreased TLC

70. Decreased RV

71. Decreased FEV1/FVC

Correct Answer - A:B:C:D
Answer- A,Decreased FVC B,Decreased FEV1 C,Decreased TLC D,Decreased RV
PET Result for Restrictive lung disease-

- FEV1- Decreased
- FVC- Decreased
- FEV1/ FVC- Normal or increased
- TLC- Decreased
- DLCO- Decreased in intrinsic restrictive lung disease

136. Fifth cranial nerve palsy causes

f) Weakness of opening of mouth

g) Weakness of closure of mouth

h) Loss of corneal reflex

i) Loss of lacrimal reflex

j) Loss of taste sensation from anterior 2/3 of tongue

Correct Answer - A:B:C:D

Answer- A,Weakness of opening of mouth B,Weakness of closure of mouth C,Loss of corneal reflex D,Loss of lacrimal reflex

- Opening of mouth is caused by both lateral pterygoid --> Supplied by mandibular branch of trigeminal nerve.

68. One side injury to trigeminal nerve causes weakness of opening of mouth and deviation of jaw to affected side.

. Both side palsy causes weakness of opening of mouth.

- Corneal reflex and lacrimal reflex pathway involve trigeminal nerve.
- Corneal reflex - Afferent limb is formed by ophthalmic nerve and efferent limb is facial nerve.

f) Patient came with complaints of Polydipsia, hypercalciurea, nephrolithiasis, metabolic alkalosis. Possible cause is

69. Bartters syndrome

70. Gittlemans syndrome

71. Addisons disease

72. Chronic diuretic use

73. None

Correct Answer - A

Answer- A. Bartters syndrome

- Bartter syndrome is an autosomal recessive disorder caused by mutation in gene coding for basolateral chloride channel (ClC-kb). There is loss of sodium, chloride, potassium and calcium in urine.
- The major clinical findings are hyponatremia, hypokalemia, polyurea, polydipsia, metabolic alkalosis, normal to low
- BP, hypomagnesemia (only in some patients), hypochloremia, hypercalciuria (causing nephrocalcinosis), and growth

f) True about ECG findings of ventricular premature beat is/are

70. Increase R-R interval

71. ST segment depression

72. ST segment elevation

73. T wave inversion

74. Obsured P wave

Correct Answer - B:C:D:E

Answer- B,ST segment depression C,ST segment elevation D,T wave inversion E,Obsured P wave ST-T wave

When QRS complex upight

- S-T segment is depressed and convex upwards
- T wave is inverted

When QRS complex downward

- S-T segment is elevated and concave upwards
- T wave is upright

f) Patient comes with mild dyspnea. On ECG monomorphic ventricular tachycardia was found, which of the following drug is to be used

71. Adenosine

72. Lignocaine

73. Amiodarone

74. Propranolol

75. Procainamide

Correct Answer - B:C:D:E

Answer-

B,Lignocaine C,Amiodarone D,Propranolol E,Procainamide Stable patient with monomorphic VT

f) If left ventricular function is normal-

- IV procainamide or
- IV amiodarone or
- IV sotalol/propranol/ esmolol
- Lidocaine may also be used

g) Impaired left ventricular function

- IV amiodarone or lidocaine are preferred

72. Capnography helps to know the following

f) Correct intubation

g) Pulmonary embolism

h) Adequate ventilation

i) Lung perfusion

j) Significant metabolic change

Correct Answer - A:B:C:D:E

Answer- A,Correct intubation B,Pulmonary embolism C,Adequate ventilation D,Lung perfusion E,Significant metabolic change

- Conditions that affect ET CO2
- Increased
- Hypoventilation
- Rebreathing
- Malignant hyperthermia,
- Neuroleptic malignant syndrome
- Increased skeletal muscle activity (shivering
- Hypermetabolism
- Hyperthyroidism & thyroid storm
- Decreased
- Hyperventilation
- Pulmonary embolism
- Hypoperfusion, hypotension, hypovalemia, shock
- Hypothermia

f) Not true regarding mucopolysccharidosis is/are

74. They are lysosomal diseases

75. All are autosomal dominant except Sanfilippo syndrome

76. They have common skeletal feature: Dysostosis multiplex

77. Hurler syndrome is due to deficiency of Iduronate sulfatase

78. Morquio syndrome [IV] is due to deficiency of Beta-galactosidase

Correct Answer - B:D

Answer- B,All are autosomal dominant except Sanfilippo syndrome D,Hurler syndrome is due to deficiency of Iduronate sulfatase

- Mucopolysaccharidosis (MPS) represent a heterogenous group of inheritable lysosomal storage diseases in which the accumulation of undegraded glycans leads to progressive damage of affected tissues.
- Hurler (IH) syndrome- Alpha L-iduronidase
- Corneal clouding, dysostosis multiplex, organomegaly; heart disease, mental retardation
- Sanfilippo syndrome- Autosomal recessive.
- Morquio IV syndrome- Beta-galactosidase, Galactose-6- sulfate sulfatase
- Maroteaux-Lamy syndrome- N-acetylgalactosamine (Dysostosis multiplex)

f) Drugs used in bladder/urinary incontinence

75. Oxybutynin

76. Tolterodine

77. Trospium

78. Neostigmine

79. Demecarium

Correct Answer - A:B:C
Answer- A,Oxybutynin B,Tolterodine C,Trospium

- Selective M3 antagonists- Oxybutynin, darifenacin, Tolterodine
- Nonselective antagonist- Trospium, Propiverine
- Tricyclic antidepressant- Imipramine

f) Which of the following is/are included in the management of stress incontinence

f) Botulinum toxin

g) Kelly procedure

h) Antichoinergic

i) Urethropexy

j) Imipramine

Correct Answer - B:C:D:E

Answer- B,Kelly procedure C,Antichoinergic D,Urethropexy E,Imipramine

There are 4 types of treatment-

77. Behavior changes

78. Medicine

- Anticholinergic medicines help relax the muscles of the bladder.
- Antimuscarinic drugs block bladder contractions.
- Imipramine, an antidepressant, helps relax bladder muscles.

f) Pelvic floor muscle training

g) Surgery

- Anterior vaginal repair (anterior colporrhaphy or Kelly procedure) helps restore weak and sagging vaginal walls.
- Artificial urinary sphincter
- Bulking injections make the area around the urethra thicker.
- Burch urethropexy and Marshall-Marchetti-Krantz (MMK) procedure

(vii) Primaqunie sensitivity is seen in anemia with following enzyme deficiency except

78. Pyruvate dehydrogenase

79. Hexokinase

80. Glucose 6 phosphate dehydrogenase

81. Glucose 6 phosphate

82. None

Correct Answer - A:B:D

Answer- A,Pyruvate dehydrogenase B,Hexokinase D,Glucose 6 phosphate

- It is active on pre and exo-erythrocytic stage. (Primaquine is the only antimalarial which is active on exoerythrocytic stage). It acts by interfering mitochondrial function.
- Those with G-6-PD deficiency are highly sensitive anil hemolytic anaemia can occur.
- Therefore it should be avoided in pregnancy as fetus with G6PD deficiency may develop hemolytic anemia.

145. Red color of urine is caused by

f) Aniline dye

g) Beet root ingestion

h) Rifampicin

i) Penol intake

j) Alkaptonuria

Correct Answer - A:B:C

Answer- A,Aniline dye B,Beet root ingestion C,Rifampicin • Hematuria
- Porphyria
- Serratia marcescens
- Aniline dyes
- Ingestion of blackberries
- Ingestion of beetroot
- Phenolphthaliene
- Phenytoin
- Rifampin (red brown orange)
- Pyridium

f) Solute induced diuresis is characterized by -

. Polyuria

. Decreased urine osmolality

. Urine: Plasma osmolality > 0.7

. Osmotic clearance > 3 ml/min

. Urine output > 3L/day

Correct Answer - A:C:D:E

Answer- (A) Polyuria (C) Urine: Plasma osmolality > 0.7 . Osmotic clearance > 3 ml/min (E) Urine output > 3L/day ▪ Urine-to Plasma osmolality ratio >0.7

▪ Osmotic clearance >3 mL/min

▪ Polyuria → Urine osmolality (>300 mosmol) → Solute diuresis → Glucose, mannitol,radiocontrast, urea(from high proteinfeeding) medullary cystic diseases, resolving ATN, or obstruction, diuretics.

147. Milk-alkali syndrome is associated with -

. High PTH

. Hypercalcemia

. Metabolic acidosis

. Elevated creatinine

. Hyperphosphatemia

Correct Answer - B:D:E
Answer- (B) Hypercalcemia (D) Elevated creatinine (E) Hyperphosphatemia
The syndrome is characterized by -
. Hypercalcemia
. Hyperphosphatemia
. Metabolic alkalosis
. Metastatic calcification
. Progressive renal failure (inreased, BUN and creatinine)

148. Continuous murmur is seen is -

f) Patent ductus arteriosus

g) Tetrology of fallot

h) Pregnancy

i) Coarctation of aorta

j) Ventricular septal defect

Correct Answer - A:C:D

Answer- (A) Patent ductus arteriosus (C) Pregnancy (D) Coarctation of aorta

- Common Causes of continuous murmurs
- Systemic arteriovenous fistula (congenital /acquired)
- Coronary arteriovenous fistula
- Anomalous origin of Left coronary artery from pulmonary artery
- Communication between sinus of valsalva and right side of heart (i.e.Ruptured sinus of valsalva into right side of heart)
- Coarctation of Aorta : Continuous murmur in the back
- Patent Ductus Arteriosus (PDA)
- Surgically created shunts e.g. Blalock-Tausig shunt
- Mammary souffle (pregnancy)

149. Early diastolic murmur is seen in which condition(s) -

a) Mitral stenosis

b) Tricuspid stenosis

c) Aortic regurgitation

d) Pulmonary regurgitation

e) Atrial myxoma

Correct Answer - C:D

Answer- (C) Aortic regurgitation (D) Pulmonary regurgitation

Aortic regurgitation- The murmur is low intensity, high-pitched, best heard over the left sternal border or over the right second intercostal space.

- An Austin Flint murmur is usually associated with significant aortic regurgitation.
- Pulmonary regurgitation- Pulmonary regurgitation is most commonly due to pulmonary hypertension (Graham- Steell murmur)
- Left anterior descending artery stenosis- This murmur, also known as Dock's murmur.

150. Not true about kaposi sarcoma -

a) Caused by HHV-8

b) Classical form is associated with HIV

c) Is an angioproliferative disorder

d) Monocentric tumor

e) May involve GIT

Correct Answer - B:D

Answer- (B) Classical form is associated with HIV

(D) Monocentric tumor

- KaPosi sarcoma is multicentric vascular tumor caused by Human herpes virus-8 (HHV-8) also called Kaposi sarcoma associated herpes virus (KSHV).

There are four forms of Kaposi sarcoma-

I) Classical form (European or Mediterranean KS)

- There is no association with HIV. There are skin plaques and nodules.

2) African form (Endemic form or Equatorial form)

- There is no association with HIV. There is lymphadenopathy

3) Transplant associated (immunosuppression associated) KS

4) AIDS cssociated (Epidemic) KS

- It is associated with HIV infecfion

151. Vascular changes of malignant hypertension is are -

a) Hyaline arteriosclerosis

b) Necrotizing arteriolitis

c) Hyperplastic arterioscleroesis

d) Aortic dissection

e) Onion skinning

Correct Answer - B:C:D:E

Answer- (B) Necrotizing arteriolitis (C) Hyperplastic arterioscleroesis (D) Aortic dissection (E) Onion skinning Hypertension is associated with two forms-1. Hyaline arteriolosclerosis-

- It is characteristic of benign hypertension.

2. Hyperplastic arteriosclerosis

- It is characteristic of malignant hypertension
- Onion skinning
- There is mucinous intimal thickening and fibrous intimal thickening.

There may be accompanied fibrinoid deposits with necrosis of the vessels wall --> fibrinoid necrosis (or necrotizing arteriolitis).

152. All of the following statements about Neurofibromatosis are true, Except:

a) Autosomal Recessive Inheritance

b) Cutaneous neurofibromas

c) Cataract

d) Scoliosis

e) None

Correct Answer - A

Answer- A. Autosomal Recessive Inheritance

- Neurofibromatosis is inherited as an autosomal dominant condition.
- Peripheral Neurofibromatosis (Von Recklinghausen's syndrome)
- Most prevalent type (90%)
- Diagnostic Criteria for NF I

Diagnosed when any two of the following are present

. Six more cafe-au-loit macules over 5 mm in greatest diameter in prepubertal individuals and over 15 mm in greatest diameter in post-pubertal individuals.
. Axillary or inguinal freckling
. Two or more iris Lisch nodules
. Two or more neurofibromas or one plexiform neurofibroma
. A distinctive osseous lesion such as sphenoid dysplasia or cortical thinning of long bone, with or without pseudoarthrosis. 6. Optic gliomas.
. A first degree relative with NFI whose diagnosis was based on the aforementioned criteria.

- Scoliosis is the most common orthopaedic manifestation NFI.

153. True about primary sclerosing cholangitis:

a) Involves only intrahepatic bile duct, not extrahepatic bile duct

b) Associated with Inflammatory bowel disease

c) Causes macronodular cirrhosis

d) Periductal fibrosis of smaller bile ducts

e) None

Correct Answer - B:D

Answer- (B) Associated with Inflammatory bowel disease
(D) Periductal fibrosis of smaller bile ducts

- PSC is characterized by Inflammation and obliterative fibrosis of Intrahepatic and extrahepatic bile ducts wlth dilation of preserved segments.
- Inflammatory bowel disease , particularly ulcerative colitis, coexists in approximately 70% of individuals with PSC.
- Primary sclerosing cholangltis causes micronodular cirrhosis.

Following changes are seen-fibrosing cholangitis, periductal fibrosis, dilation of intervening bile ducts and cholestatis with full blown picture of biliary cirrhosis"

154. Increased portal venous pressure is seen in

a) Budd chairi syndrome

b) Cirrhosis

c) Portal venous thrombosis

d) IVC obstruction

e) None

Correct Answer - A:B:C:D

Answer- A,Budd chairi syndrome B,Cirrhosis C,Portal venous thrombosis D,IVC obstruction

- MC cause of portal hypertension : Cirrhosis.
- Portal hypertension results in splenomegaly with enlarged, tortuous, and even aneurysmal splenic vessels.
- Most bleeding episodes occur during the first I to 2 years after identification ofvarices.
- Colour Doppler is the investigation of choice for evaluation of PHT.
- Splenic pulp pressure gives a measure of the portal vein pressure.

Posthepatic

- Budd-Chiari syndrome
- Inferiorvena caval webs

Hepatic-

- Sinusoidal
- Cirrhosis
- Alcoholic hepatitis

155. Which of the following suture materials are not cleared by proteolytic enzymes

a) Catgut

b) Vicryl

c) Nylon

d) Polyglactin

e) Polyamide

Correct Answer - B:C:D:E

Anwer- B,Vicryl C,Nylon D,Polyglactin E,Polyamide

A) Natural

- Silk
- Linen
- Cotton

B) Synthetic

- Nylon
- Polypropylene
- Polybutest
- Braided polysters

156. Along with surgical treatment of glioblastoma multiforme, following drug is approved for its treatment

a) Cisplatin

b) Methotrexate

c) Cytarabin

d) Paclitaxel

e) Temozolomide

Correct Answer - A:E
Answer- A,Cisplatin E,Temozolomide

- Carmustine (BCNU)
- Cisplatin
- Bevacizumab (avastin)

157. Which of the following is not true

a) Reef knot is stronger than Granny knot

b) Granny knot is stronger than Reef knot

c) Reef knot is applied for tissue under pressure

d) Reef knot is stronger than Surgeon's knot

e) Reef knot is better than slip knot for bowel anastomosis

Correct Answer - B:D:E

Answer- B,Granny knot is stronger than Reef knot D,Reef knot is stronger than Surgeon's knot E,Reef knot is better than slip knot for bowel anastomosis

- Square knot is formed by wrapping the suture around the needle holder once in opposite direction between ties.
- Usually 3 ties are recommended.
- Square (Reef) knot is more stable than Granny knot - has less tendency to slip wher subjected increased pressure.
- It may be used to tie Surgical gut, virgin silk, surgical cotton and surgical stainless steel.

158. True about chest wall tumor is /are

a) Lipoma is the most common tumor

b) Fibrous dysplasia is a common skeletal sarcoma

c) Desmoid tumor is usually not malignant

d) Chondrosarcoma is the most common malignant tumor

e) Treated by surgical resection with wide surgical margins

Correct Answer - B:D:E

Answer- B,Fibrous dysplasia... D,Chondrosarcoma is the most... E,Treated by surgical resection...

- More than half of the cest wall tumors are malignant.

The most common benign chest wall tumors are:

- Osteochondroma
- Chondroma
- Fibrous dysplasia
- Chondrosarcomas are the most common primary chest wall sarcoma and arise from the anterior tract of ribs and less
- commonly from the sternum, scapula, or clavicle.
- The most common soft-tissue primary malignant tumors are fibrosarcomas.
- Most chest wall tumors are treated with surgical resection and reconstruction.

159. True regarding management of axillary lymph nodes in breast carcinoma

a) All lymph-nodes are dissected

b) Lymph node dissection is done in modified radical mastectomy

c) Can be explored through the extended incision of breast

d) Complete dissection is required if 2 sentinel lymph nodes are positive

e) None

Correct Answer - B:C

Answer- B,Lymph node dissection is done in modified radical mastectomy C,Can be explored through the extended incision of breast

- All lymph nodes are not dissected in breast carcinoma, specially in stage I & II
- Lymph nodes are dissected in modified radical mastectomy
- Axilla can be explored through the vertical incision taken for breast
- Complete dissection is not required of 1 or 2 sentinel lymph nodes are positive in stage I & II

160. Level VI lymph nodes in neck -

a) Anterior compartment

b) Prelaryngeal

c) Submental

d) Nodes of upper mediastinum

e) Jugular nodes

Correct Answer - A:B

Answer- (A) Anterior compartment (B) Prelaryngeal

- Level VI
- Pretracheal
- Paratracheal
- Prelaryngeal

161. True about Abdominal compartment is /are -

a) Intraabdominal pressure > 15 mm Hg

b) Increased intracranial pressure

c) Decreased cardiac output

d) Hypoventilation

e) Renal failure and oliguria

Correct Answer - B:C:D:E

Answer- (B) Increased intracranial pressure (C) Decreased cardiac output (D) Hypoventilation (E) Renal failure and oliguria

- ACS is defined as an increase in intra- abdominal pressure (IAP) more than 20mm Hg associated with new organ failure/ dysfunction.

Physiological Consequences of Increased Infra-abdominal Pressure-

Decreased-

- Cardiac Output
- Central Venous Return
- Visceral blood flow
- Renal blood flow
- Glomerular filteration
- Increased
- Cardiac rate
- Pulmonary capillary wedge pressure
- Peak inspiratory pressure
- Intrapleural pressure
- Hypoventilation and alteration of ventilation/perfusion distribution

lead to hypoxemia and hypercapnia.

162. Most common site of splenic implant in abdomen -

a) Stomach

b) Tail of pancreas

c) Peritoneal cavity

d) Suprarenal gland

e) None

Correct Answer - C

Answer- C. Peritoneal cavity

- Hetertopic splenic implant (splenosis) may occur in the peritoneal cavity, after splenic trauma or splenectomy.
- Splenosis is autotransplantation of splenic tissue after disruption of splenic capsule by trauma or surgery.
- Most common areas of implantalion are peritoneum, omentum and mesentry.

163. Symptoms of mesenteric ischemia is /are -

a) Severe abdominal pain

b) Degree of tenderness is proportionate to abdominal pain

c) Nausea and vomiting

d) Diarrhea

e) Absent bowel sound

Correct Answer - A:C:D:E

Answer- (A) Severe abdominal pain (C) Nausea and vomiting (D) Diarrhea (E) Absent bowel sound

- Ischaemia affecting the small intestine referred to as mesentric ischaemia.

Intestinal ischemia can be of two types-

Acute mesenteric ischemia (the common type)

Chronic mesenteric ischemia - C/F

- Severe abdominal pain, out ofproportion to the degree of tenderness on exarnination, is the hallmark ofacute mesenteric ischemia.

Associated symptoms can include nausea, vomiting, and diarrhea.

164. Treatment of acute pancreatitis include(s) -

a) Intravenous fluid

b) Early ERCP

c) NSAIDs

d) Nasogastric tube

e) Octeride

Correct Answer - A:C:D

Answer- (A) Intravenous fluid (C) NSAIDs (D) Nasogastric tube

Mainly conservative - fluid resuscitation, analgesics, antibiotics and anti-emetics

- No role for TPN(to rest the pancreas); for nutritional support – enteral (nasogastric) feeding
- In patients with severe acute gall stone pancreatitis and signs of ongoing biliary obstruction and cholangitis, an urgent ERCP should be performed
- In patients with cholangitis – sphincterotomy or a biliary stent

Indications for surgery: deterioration despite conservative therapy, pancreatic abscess/necrosis.

165. Bilateral Hilar lymphadenopathy is seen in -

a) Berylliosis

b) Silicosis

c) Amyloidosis

d) Occupational diseases

e) All

Correct Answer - A:B:D

Answer- (A) Berylliosis (B) Silicosis (D) Occupational diseases

- Occupational: Silicosis, coal worker, pneumoconiosis, Berylliosis
- TB (unilateral is more common)
- Castleman's disease
- Angioimmunoblastic lymphadenopathy
- Phenytoin therapy

166. True about lipoma is/are -

a) Most common benign tumor of adults

b) Multiple lipoma can occur and are called as Dercum's disease

c) Intramuscular lipoma may cause pain

d) Rarely may occur in brain

e) May show slip sign

Correct Answer - A:B:C:E

Answer- A,Most common benign tumor of adults B,Multiple lipoma can occur and are called as Dercum's disease C,Intramuscular lipoma may cause pain E,May show slip sign

- Lipoma is a benign tumor of mature adipose tissue,
- Lipoma is the most common benign tumor in adults.
- Common sites are subcutaneous tissue over the trunk, nape of the neck and limbs.
- Slip sign is positive : Lipoma tends to slip away from the examining finger on gentle pressure.
- Presence of multiple lipomas is known as lipomatosis and multiple lipomas are called Dercum's disease.
- Intramuscular lipoma may interfere with muscle function and causes pain on muscle action.

167. Macrocephaly is seen in –

a) Soto's syndrome

b) Gorlin Syndrome

c) Achondroplasia

d) Maternal diabetes

e) Struge-Weber syndrome

Correct Answer - A:B:C:E

Ans. is 'a' i.e., Soto's syndrome; 'b' i.e., Gorlin Syndrome; 'c' i.e., Achondroplasia; &'e' i.e., Struge-Weber syndrome

Syndromes:

- Fragile-X syndrome
- Neuro-cutaneous syndromes
- Tuberous sclerosis
- Sturge-Weber

Increased CSF:

- Hydrocephalus,
- Choroid plexus papilloma.

Bone disease :

- Achondroplasia
- Osteogenesis imperfecta
- OsteoPetrosis.

Others :

- AV malformation
- Intracranial haemorrhage
- Thalassemia major
- Hypervitaminosis-A
- Lead poisoning

- Pseudotumor cerebri
- Galactosemia
- Canavan's leukodystrophy.

Overgrowth syndromes :

- Soto syndrome (Cerebral gigantism)
- Weaver syndrome
- Simpson-Golabi-Behmel syndrome (bulldog syndrome)
- Macrocephaly -Capillary malformation (M-CMTC) syndrome.

Neuro-cardio facial-cutaneous syndromes:

- Noonan syndrome
- Costello syndrome
- Gorlin syndrome (Basal Cell Nevus syndrome)
- Cardio-facio-cutaneous syndrome.
- Fragile-x syndrome & leukodystrophies (Alexander disease, Canavan disease).

168. Large Skull size of newborn is seen in –

a) Fetal alcohol syndrome

b) Gestational diabetes

c) Turner's syndrome

d) Canavan's leukodystrophy

e) Neurofibromatosis

Correct Answer - D:E

Ans. is'd'i.e., Canavan's leukodystrophy; & 'e'i.e., Neurofibromatosis

Canavan disease:

- **Autosomal-recessive neurological disorder associated with macrocephaly and spongiform degeneration of brain.**
- There is either a lack of development or rapid regression of psychomotor function, loss of sight and optic atrophy, lethargy, difficulty in sucking, irritability, reduced motor activity, hypotonia followed by spasticity of the limbs with corticospinal signs, and an enlarged head (macrocephaly).

169. Clinical features of B-cell ALL in children include:

a) Fever

b) Intrauterine death

c) Shock

d) Rigor mortis

e) Mediastinal enlargement

Correct Answer - A:B:C:D

Ans. is'a'i.e., Fever;'b'i.e., Intrauterine death'c'i.e., Shock &'d'i.e., Rigor mortis

Clinical manifestations of ALL :

Symptoms related to depression of normal marrow function. :

- Anemia
- Neutropenia
- Fatigue, pallor
- Infection, intermittent lever
- Thrombocytopenia
- Bleeding, petechiae, ecchymoses, epistaxis.
- Bone pain and tenderness
- Generalized lymphadenopathy, splenomegaly and hepatomegaly
- Symptoms related to compression of large mediastinal vessels or airway

CNS manifestation :

- Headache, vomiting, nerve palsies.
- Serious infections may cause Septic shock and life threatening bleeding.

- Due to neutropenia, there maybe infectious diarrhea.

170. True about heart sounds/murmur in atrial septal defect -

a) Wide split S,

b) Early diastolic murmur

c) Loud shunt murmur

d) Delayed P_2

e) Attenuation of S1

Correct Answer - A:D

Ans. is'a'i.e., Wide split S2 & 'd'i.e., Delayed P_2 Clinical manifestations of ASD

- Patients with ASD are generally asymptomatic.
- Mild effort intolerance and respiratory tract infection may occur.
- CHF is rare.

Physical examination

- Parasternal impulse
- Systolic thrill at 2nd left interspace.
- Accentuation of S, due to loud tricuspid component.
- Wide split and fixed S2.
- Ejection systolic murmur at the second and third left interspaces.
- Delayed diastolic murmur at the lower left sternal border.
- ASD with mitral stenosis → Lutembacher syndrome.

Chest x-ray in ASD

- Mild to moderate cardiomegaly artery segment.
- Prominent pulmonary
- Right atrial and right ventricular enlargement.
- Relatively small aortic shadow

- Plethoric lung fields.

171. True about murmur(s) in Patent Ductus arteriosus -

a) Delayed diastolic murmur

b) Continuous murmur

c) Reverse splitting of S2

d) Ejection systolic murmur

e) Mid diastolic murmur

Correct Answer - A:B:C:D

Ans. is 'a' i.e., Delayed diastolic murmur; 'b' i.e., Continuous murmur; 'c' i.e., Reverse splitting of S2 ; &'d' i.e., Ejection systolic murmur

- Pressure gradient between aorta and pulmonary artery is maintained throughout the cardiac cycle (during systole and diastole) → Continuous murmur, i.e., murmur starts in systole after S1 , and reaches a peak at S2. It then diminishes and audible only a part ofdiastole.
- Larger blood volume passes through pulmonary circulation (blood from right side of heart plus some blood from aorta) → Pulmonary plethora which may cause pulmonary hypertension.
- Increased flow after passing through lung reaches the left atrium and causes volume overload → Left atrial dilatation and hypertrophy.
- Increased blood volume passes from left atrium to left ventricle through mitral valve, i.e., increased flow through mitral valve → Accentuation of S1 and delayed diastolic murmur.
- Left ventricle receives larger amount of blood that results in volume overload → Left ventricle enlargement.

- Extra volume passes through aortic area cause delayed closure of aortic valve which may close even after pulmonary valve (normal pulmonary valves close after aortic valves).→ Paradoxical splitting of S2, i.e., A, occurs after P.
- Large left ventricular volume ejected into the aorta results in dilatation of the ascending aorta → Aortic ejection click.
- Large volume of blood passes through normal aortic valve → Aortic ejection systolic murmur

172. Difference in Murmurs of PDA and ASD is/are -

a) Delayed P2 in PDA

b) Wide split of S2 in PDA

c) Accentuation of S1 in ASD

d) Continuous murmur in PDA

e) Delayed diastolic murmur in ASD

Correct Answer - D

Ans. is'd'i.e., Continuous murmur in PDA

- Delayed P2 and wide split S2 are feature of ASD (not PDA).
- There is continuous murmur in PDA.

173. Radiological features of TOF is/are -

a) Cardiomegaly

b) Boot shaped heart

c) Right sided aortic arch

d) Pulmonary Plethora

e) Coeur an sabot

Correct Answer - B:C:E

Ans. is 'b' i.e., Boot shaped heart; 'c' i.e., Right sided aortic arch; &'e' i.e., Coeur an sabot

Radiological features of TOF

Boot shaped heart (Coeur an sabot)

Normal heart size • Oligaemic lung fields

• Right aortic arch (in 25%)

174. True about RETT Syndrome –

a) Macrocephaly

b) Cardiac arrhythmia

c) Seizures

d) Mental retardation

e) Autistic behaviour

Correct Answer - B:C:D:E

Ans. is'b'i.e., Cardiac arrhythmia,'c'i.e., Seizures,'d'i.e., Mental retardation &'e'i.e., Autistic behaviour Rett's Syndrome

- This is the characteristic features, that they begin to loose their acquired skills, e.g., cognitive and head growth is normal during early period after which there is an arrest of growth.
- Acquired microcephaly
- Most children develop peculiar sighing respirations with intermittent periods of apnea that may be associated with cyanosis → Breath holding spells.
- Autistic behaviour → Impaired social interaction, language and communication.
- Generalized tonic-clonic convulsions occur in the majority.
- Feeding disorder and poor weight gain

175. True about applying a plaster is are –

a) Taken out from water once bubbles start coming

b) Taken out from water once bubbles stop coming out

c) Setting is delayed in cold water

d) Cotton padding is overlapped by one third

e) Molding/smoothing of plaster is done by fingers

Correct Answer - B:C:D

Ans. is'b' i.e., Taken out from water once bubbles stop coming out; 'c' i.e., Setting is delayed in cold water; 'd' i.e., Cotton padding is overlapped by one third

- For securing, each turn is overlapped by one third to one half in order to secure layers.
- If a bandage is immersed in cold water the initial set will be delayed and thus "working time" lengthened. However, if a very rapid is required soaking the bandage in warm water will accelerate the rate of reaction.
- Moulding of the bandages to the contours of the limb should be done by constant smoothing with the palms (not by fingers) of the wet hands.

2. Radiological features of Perthe's disease is/are –

3. Decreased medial joint space

4. Lateral subluxation

5. Vertical Physis

6. Speckled calcification

7. Wide femoral neck

Correct Answer - B:D:E

Ans. is, b' i.e., Lateral subluxation; 'd' i.e., Speckled calcification &'e' i.e., Wide femoral neck

Radiological findings in perthe's disease are :-

- Increased medial joint space
- Widening of femoral neck
- Lateral extrusion (lateral subluxation)
- Metaphyseal cysts and rarefaction of metaphysis
- Horizontal physis with speckled calcifcation lateral to it

Fragmentation of femoral head with increased density (irregular densities in the epiphysis).

4. Late complication of supracondylar fracture is –

5. Ulnar nerve palsy
6. Cubitus varus
7. Cubitus valgus
8. Myositis ossificans
9. Volkmann's ischemic contracture

Correct Answer - B:D:E

Ans. 'b' 1.e., Cubitus Varus 'd' i.e., Myositis ossificans 'e' i.e., Volkmann ischemic contracture Late Complications :

Occurring weeks to months after the fracture and include :

- Malunion: - It is the commonest complication of supracondylar fracture and results in cubitus varus (Gun stock deformity), Cubitus valgus is rare and may occur occasionally in posterolateral displacement.
- Myositis ossificans and elbow stiffness.
- Volkmann's ischemic contracture

. **Complication(s) of fracture of lateral condyle humerus is/are –**

. Cubitus varus deformity

. Tardy ulnar nerve palsy

. Cubitus valgus deformity

. Median nerve injury

. Non-union

Correct Answer - A:B:C:E

Ans. is 'a' i.e., Cubitus varus deformity 'b' i.e., Tardy ulnar nerve palsy; 'c' i.e., Cubitus valgus deformity; 'e' i.e., Non-union Complications of Lateral condyle of humerus fracture

- Lateral spur
- Cubitus valgus
- Rarely, cubitus varus
- Tardy ulnar nerve palsy
- Rarely avascular necrosis and myositis ossificans

Posterolateral instability and recurrent instability

. **Following are true regarding hangmans fracture –**

6. Fracture of spinous process of C7

7. Fracture of C2 vertebra

8. Listhesis of the fracture vertebra

9. Knot is placed under nape of neck

10. None

Correct Answer - B:C

Ans. is 'b' i.e., Fracture of C2 vertebra; 'c' i.e., Listhesis of the fracture vertebra

Hangman's fracture

- Hangman's fracture is bilateral fracture of the pars interarticularis of axis (C_2) with traumatic spondylolisthesis of axis (C_2) over C_3 vertebrae. Thus Hangman's fracture is not simply a fracture, but fracture dislocation of axis (C2).
- The mechanism of injury is extension with distraction (in true, judicial hangman's fracture) and hyper-extension, axial compression &. flexion (in civilian injuries, which are now more common).
- It is second most common type of Axis (C_2) fracture, second only to odontoid fractures.
- Fatalaties are common, However, neurological deficit is unusual as the fracture of posterior arch decompress the spinal cord.
- Most of the fatalities occur at the scene of injury, acute post admission mortality is low.
- Successful healing of C_2 traumatic spondylolisthesis is reported to approach 95%. This is most commonly achieved with non-operative

measures, even in the presence of displacement of pars inter-articularis.

- Undisplaced fractures are treated in a semi-rigid orthosis, and displaced fracture are closed reduced & treated with halo-vest.
- Occasionally, the hangman's fracture is associated with a C2/3 facet dislocation. This is a severely unstable injury; open reduction and stabilization is required.

180. True about keinbock's disease is/are –

7. AVN of scaphoid

8. More common in males

9. May be associated with cerebral palsy

10. Stage- I shows normal X-ray

11. May cause carpal tunnel syndrome

Correct Answer - B:C:D:E

Ans. b) More common in males c) May be associated with cerebral palsy d) Stage- I shows normal X-ray e) May cause carpal tunnel syndrome

Keinbock's disease :

- It is avascular necrosis of lunate bone. It is related to overuse and ulnar negative wrist variance and may be associated with sickle cell anemia, steroid abuse, gout and cerebral palsy.
- It usually occurs in 2nd to 5 decade with male preponderance' • Patients complains of dorsal wrist pain, swelling, warmth, tenderness over the radio lunate joint reduced ROM and decreased grip strength.

Complications:

- Stiffness
- Loss of motion
- Weakness
- Carpal tunnel syndrome
- Persistent pain
- Instability
- Degeneration in adjacent joints

181. True about location(s) of tumor is/are –

8. Osteosarcoma is diaphyseal

9. Ewing sarcoma is diaphyseal

10. Chondrosarcoma is metaphyseal

11. Fibrosarcoma is diaphyseal

12. Osteoclastoma is epiphyseal

Correct Answer - B:C:D:E

Ans. b) Ewing sarcoma is diaphyseal c) Chondrosarcoma is metaphyseal d) Fibrosarcoma is diaphyseal e) Osteoclastoma is epiphyseal

Epiphyseal tumor:

- Chondroblastoma
- Giant cell tumor (osteoclastoma)
- Clear cell chondrosarcoma

Metaphyseal lesion:

- Osteogenic sarcoma .
- Unicameral (simple) bone cyst .
- Aneurysmal bone cyst .
- Fibrous cortical defect .
- Chondrosarcoma
- Osteochondroma
- Enchondroma .
- Osteoblastoma

Diaphyseal lesion:

- Ewing sarcoma
- Lymphomas
- Fibrous dysplasia

- Adamantinoma
- Histiocytosis
- Osteoid osteoma
- Chondromyxoid fibroma
- Fibrosarcoma
- Fibrous cortical defect
- Non ossifying fibroma

9. A 28 years old lady presented with wrist pain. X-ray wrist is showing lytic eccentric lesion in lower end of radius with soap bubble appearance. What is the next plan of management –

10. Bone curettage and bone grafting

11. Extended curettage with phenol

12. Biopsy of the lesion

13. Extended curettage with phenol and bone grafting

14. Parathyroid and serum calcium levels measurement

Correct Answer - C

Ans. is'c' 1.e., Biopsy of the lesion

- 28 years female with lytic eccentric lesion in lower end of radius and soap bubble appearance suggest the diagnosis of GCT.
- Next plan of management would be biopsy of lesion to confirm the diagnosis.

f) True about the sites involved in osteomyelitis is/are –

f) Mainly involves metaphysis

g) Distal tibia is involved commonly

h) Proximal humerus is involved commonly

i) Proximal femur is involved commonly

j) Reaches to site by hematogenous routes

Correct Answer - A:C:E

Ans. is ,a, i.e., Mainly involves metaphysis;'c' i.e., Proximal humerus is involved commonly 'e' i'e', Reaches to site by hematogenous route

- Hematogenous osteomyelitis is the commonest form of osteomyelitis and almost common source of bone and joint infection is hematogenous.
- It is caused most commonly by staphylococcus aureus.
- Other causative organisms are streptococcus, pneumococcus, and gram negative bacilli.
- Infection by pseudomonas becomes proportionally much more common in IV drug abuser. But, the most common organism is staphylococcus aureus.

13. Compound palmar ganglion is caused by –

f) Trauma

g) Overuse

h) RA

i) TB

j) SLE

Correct Answer - C:D

Ans. is'c' i.e., RA 'd' i.e., TB

- Rheumatoid arthritis and tuberculosis are the commonest causes.
- Tubercular and rheumatoid compound palmer ganglion is characterized by presence of rice bodies, millet bodies and melon seeds.

185. True about compound palmar ganglion –

14. Due to degeneration of flexor retinaculum

15. Hour-glass in shape

16. Surgery is the mainstay of treatment

17. Intrasynovial steroid is the mainstay of treatment

18. May be seen in rheumatoid arthritis

Correct Answer - A:D

Ans. is 'a' i.e., Due to degeneration of flexor retinaculum; 'd' i.e., Intrasynovial steroid is the mainstay of treatment

- Compound palmar ganglion is a misnomer because it is neither a ganglion nor compound.
- Chronic inflammation distends the common sheath of flexor tendons both above and below the flexor retinaculum.
- There is hourglass swelling, bulging above and below the flexor retinaculum
- Tubercular and rheumatoid compound palmer ganglion is characterized by presence of rice bodise, millet bodies and melon seeds
- Rheumatoid arthritis and tuberculosis are the commonest causes.

f) True about benign gestational trophoblastic disease –

k) Formed by placenta

l) Snow-Storm on USG

m) Will not turn into malignant

n) Includes partial mole

o) Includes invasive mole

Correct Answer - A:B:D

Ans. is 'a' i.e., Formed by placenta; 'b' i.e., Snow-Storm on USG; &'d' i.e., Includes partial mole

- Gestational trophoblastic disease constitutes a diverse group of lesions that includes abnormally formed placentas (hydatidiform moles), benign nonneoplastic lesions, and gestational trophoblastic neoplasms.
- A characteristic pattern of multiple vesicles (**snowstorm pattern)** is commonly seen with complete molar pregnancy.

Types:

Complete:

- Morula differentiation to a chorion and amnion fails

Complete hydatidiform mole represents a proliferation of cells containing 46 chromosomes of paternal origin only

Partial:

- If a triploid karyotype is determined as 69, XXX, 69XXY, or 69 XYY [6], then a partial mole can be confirmed.
- Complete and partial mole have malignant potential

(J) Absolute contraindication of medical abortion –

21. RHD

22. Ectopic pregnancy

23. Hypersensitivity to prostaglandins

24. Corticosteroid therapy

25. Porphyria

Correct Answer - B:C:E

Ans. is'b' i.e., Ectopic pregnancy;'c'i.e., Hypersensitivity to prostaglandins; &'e'i.e., porphyria

Absolute contraindication of medical abortion:

- Allergies to mifepristone/ misoprostol
- Inherited porphyria
- Chronic adrenal failure
- Known or suggested ectopic pregnancy
- Undiagnosed adnexal mass

o) What is the management of a woman who had IUCD inserted and diagnosed to have PID –

(I) First give antibiotic then follow up

(J)First remove IUD then give antibiotics

(K) First give antibiotic then remove IUD

(L) Remove IUD and Simultaneously start antibiotic

(M) No need for antibiotics just follow up

Correct Answer - A:B

Ans. is'a'i.e., First give antibiotic then follow up; > 'b'i.e., First remove IUD then give antibiotics

- If an IUD user receives a diagnosis of PID, the IUD does not need to be removed. However, the woman should receive treatment according to these recommendations and should have close clinical follow-up no clinical improvement occurs within 48-72 hours of initiating treatment, providers should consider removing the IUD.
- PID treatment regimens must provide empiric, broad spectrum antibiotic coverage of likely pathogens

j) A woman with amenorrhea is having negative progesterone challenge test but has bleeding on combined estrogen-Progesterone challenge. What can be the cause -

(E) Anovulation

(F) Asherman syndrome

(G) Pregnancy

(H) Pituitary tumor

(I) PCOD

Correct Answer - D

Ans. is 'd' i.e., Pituitary tumor

- **Negative progesterone challenge test -** which **rules out** PCOD - (otherwise too, PCOD is a cause of secondary amenorrhea).
- When next step was done i.e., estrogen, progesterone combined test - **It** comes out to be positive i.e., compartment I system (uterus, endometrium and outflow tract) is normal if properly stimulated by estrogen which rules out mullerian agenesis and ashermann syndrome.
- Positive estrogen progesterone combined test means the defect is in the production of estrogen i.e., either ovaries, pituitary or hypothalamus.

23. A 32 years women is presenting with infertility with facial hair growth other associated finding in the given patient may be –

k) Obesity

l) Diabetes mellitus

m) High androgen levels

n) Hypertension

o) Acanthosis nigricans

Correct Answer - A:B:C:D:E

Ans. is 'a' i.e., Obesity; 'b'i.e., Diabetes mellitus; 'c' i.e., High androgen levels; 'd' i.e., Hypertension; &'e' i.e., Acanthosis nigricans

Infertility with hirsutism (facial hair growth) in a young woman (32 years) suggests the diagnosis of PCOD (PCOS).

- Young woman Central obesity
- BMI > 30kg/cm^2
- Waist line > 88 cm
- Oilgomenorrhoea, amenorrhoea Infertility (20%)
- Hirsutism
- Acanthosis nigricans due to insulin resistance.
- Thick pigmented skin over the nape of neck, inner thigh and axilla
- Most androgens from ovary
- Increase fasting insulin > l0mlU/L

k) Genes involved in high grade serous carcinoma of ovary is –

25. K-RAS

26. PTEN

27. p53

28. WT 1

29. Beta - catenin

Correct Answer - C:D
Ans. is .c, i.e., p53; &'d' i.e., WTl
Two gene signatures of ovarian high grade serous carcinoma are:-

- WTl (Wilms tumour protein, a suppressor gene)
- P53 (tumor suppressor gene) overexpression and mutation

k) High risk marker(s) for serous ovarian cancer are –

g) p53

h) PAX2/8

i) Calretinin

j) All of the above

k) None of the above

Correct Answer - A:B
Ans. is 'a' i.e., p53; &'b' i.e., PAX2/8
The biomarkers of high grade serous ovarian cancer are
:-
- P53 over expression
- PAX 2/8 (a mullerian marker) -+> a transcription factor that is expressed in normal female genital tract epithelium (fallopian tube, endometrium, endocervix)

k) Which of the following can be used alone as a method of contraceptive if OCP is not started after menses?

24. Copper T

25. LNG - IUD ate

26. Mifepristone

27. Ulipristal acetate

28. Norgestrel

Correct Answer - A:C:D
Ans. is.a, i.e., Copper T;'c' i.e., Mifepristone; &'d' i.e., Ulipristal acetate
Emergency contraceptives:

- Levonorgestrel
- Ulipristal acetate
- Copper IUDs (Gold standard)
- Mifepristone
- Ethinyl estradiol
- Ethinyl estradiol 50 µg + norgestrel 0.25 mg

k) All of the following are true regarding breech presentation expect –

. External ballottement can be elicited

. Uterine anomaly is the most common cause of breech presentation

. Trial of labour is recommended if first fetus among twins is breech because of smaller fetal weights of twins

. There is a better prognosis of fetus if preterm breech fetus is delivered by caesarean section

. Lovset's maneuver can be done because of curved birth canal

Correct Answer - B:C

Ans. is .b, i.e., uterine anomaly is the most common cause of breech presentation; & 'c' i'e', Trial of labour is recommended if first fetus among twins is breech because of smaller fetal weights of twins

ETIOLOGY:

- Prematurity

Factors preventing spontaneous version:

- Breech with extended legs
- Twins
- Oligohydramnios
- Septate or bicornuate uterus
- Short cord, relative or absolute
- IUD of fetus.

Favourable adaptation:

- Hydrocephalus

- Placenta previa
- Contracted pelvis
- Cornu-fundal attachment of the placenta

Undue mobility of the fetus

- Hydramnios,
- Multipara with lax abdominal wall.
- Fetal abnormality: Trisomies 13, 18, 21, anencephaly and myotonic dystrophy

BIRTH INJURIES ASSOCIATED WITH BREECH DELIVERY COMPLICATIONS

- Brain damage
- Spinal cord injury
- Fetal distress
- Umbilical cord prolapse
- Seizures
- Cerebral palsy
- Compressed umbilical cord
- Nerve damage
- Umbilical cord wrapped around baby's neck
- Oxygen deprivation

. **Condyloma acuminata is reported on pap-smear as –**

k) Inflammatorycondition

l) Carcinoma

m) Carcinoma in situ

n) LSIL

o) Normal

Correct Answer - D

Ans. is'd'i.e.LSIL

- Cervical Precursor lesion associated with both low and high risk HPV subtypes.

This category includes:

- Flat mature LSIL (flat condyloma or CIN-I)
- Mature Exophytic LSIL (exophytic condyloma, condyloma acuminatum)
- Extensive Exophytic LSIL (giant condyloma)
- Immature Exophytic LSIL (immature condyloma, squamous papilloma, papillary immature metaplasia)
- Immature Flat Metaplastic LSIL

. **A high grade squamous intraepithelial lesion is noted with pap, next management includes –**

. Warthim's hysterectomy

. Local excision

. Colposcolic study and biopsy

. HPV DNA testing

. Liquid based cytology

Correct Answer - C

Ans' is'c'i.e., Colposcolic study and biopsy

- For high grade intraepithelial lesions (HSIL), first step is to do colposcopy and biopsy.

Moderate to severe dysplasia(CIN-II & CIN-III) (HSIL):

Treatment options are:

Local destructive methods

- Cryosurgery
- Fulguration/electrocoagulation .
- Laser ablation

Excision of abnormal tissue

- Cold knife conisation
- Laser conisation
- LLETZ
- LEEP
- NETZ

Surgery:

- Therapeutic conisation

- Hysterectomy
- Hysterectomy with removal of vaginal cuff if carcinoma in situ extends into vaginal vault

30. Screening test used in first trimester for aneuploidy –

k) PAPP-A &estradiol

l) PAPP-A & AFP

m) PAPP-A &beta HCG

n) Beta HCG & inhibin

o) Estradiol& AFP

Correct Answer - C

Ans. is'c'i.e., PAPP-A &beta HCG

1st trimester aneuploidy screening:

- Human chorionic gonadotropin (either intact or free (β-hCG).
- Pregnancy-associated plasma protein A (PAPP-A).

Fetal Down syndrome in 1st trimester:

- Higher serum free beta-hCG level.
- Lower PAPP-A levels.

Trisomy 18 & 13:

- Lowered levels of both HCG PAPPP-A.

2nd trimester analytes:

- Serum integrated screening.

Accuracy of aneuploidy detection:

- Greater on combination with,
- Sonographic NT measurement.

27. Tests for prenatal diagnosis of Down syndrome –

k) Nuchal fold thickness

l) Triple marker

m) Karyotyping

n) Double marker

o) CVS (chronic venous sampling)

Correct Answer - A:B:C:D:E

Ans. is'a'i.e., Nuchal fold thickness;'b'i.e., Triple marker;'c'i.e., Karyotyping;'d'i.e., Double marker; & 'e' i.e., CVS (chronic venous sampling)

Antenatal Screening for Downs syndrome :

Following methods are used :-

I) Triple test : It includes

. Unconjugated estrogen (estriol) : decreased;
. Maternal serum alpha-feto protein (MSAFS) : decreased; and
. hCG z increased

New markers : These are

. Increased inhibin A in maternal blood; and
. Decreased PAPA

USG: It shows :

. Increased nuchal translucency in first trimester;
. Ductus venous Flow reversed; and
. Nasal bone hypoplasia.

Karyotyping: It can be done by chorionic villus sampling at 10-12 weeks or amniocentesis at 16-18 weeks.

. **Most common cause of secondary postpartum haemorrhage –**

28. Trauma

29. Infection

30. Coagulation disorders

31. Endometritis

32. Retained Placenta

Correct Answer - B:D:E

Ans. is'b' i.e., Infection;'d'i.e., Endometritis; &'e'i.e., Retained placenta

Secondary PPH:

Most common cause is infection, particularly in association with:

. Retained placenta
. Obstructed labour causing necrosis of cervix
. Caeserion section & breakdown of uterine wound

200. True about carcinoma of vulva is/are –

k) Adenocarcinoma is the most common type

l) May arise from Bartholin glands

m) Smoking is a risk factor

n) Spread to inguinal lymph nodes

o) Present with pruritis

Correct Answer - B:C:D:E

Ans, is'b' i.e., May arise from Bartholin glands;'c' i.e., Smoking is a risk factor;'d'i.e., Spread to inguinal lymph nodes & 'e' i.e., Present with pruritis.

- Vulvar cancer is usually a squamous cell skin cancer, most often occurring in elderly women.

Risk factors :

- Vulvar intraepithelial neoplasia
- HPV
- Heavy cigarette smoking
- Lichen sclerosis
- Squamous hyperplasia
- Squamous carcinoma of the vagina or cervix
- Chronic granulomatous diseases

Spread:

- By direct extension
- Hematogenously
- To the inguinal lymph nodes
- From the inguinal lymph nodes to the pelvic and para-aortic lymph nodes

Symptoms:

- Palpable vulvar lesion:necrotic or ulcerated
- Pruritus
- Bleeding or a watery vaginal discharge
- Melanomas

201. Feature of acute cervicitis is /are –

33. Fever

34. Mucopurulent discharge

35. Fullness in abdomen

36. Dysuria

37. Ulcer

Correct Answer - B:C:D

Ans. 'b' i.e., Mucopurulent discharge 'c' i.e., Fullness in abdomen; & 'd' i.e., Dysuria

Acute Cervicitis :

- Vaginal discharge
- Congested & swollen cervix
- Tenderness on touching cervix
- Fullness in lower abdomen
- Dypareunia and dysuria (due to concurrent urethral infection)
- Vulvar or vaginal irritation
- Cervicalfriability or bleeding.

202. True about adenomyosis is/are –

g) Presence of myometrial tissue in endometrium

h) Presence of endometrium in peritoneal cavity

i) Mostly asymptomatic

j) May cause prolonged menstrual bleeding

k) Occurs in 4th to 5d decade

Correct Answer - C:D:E

Ans. is'c'i.e., Mostly asymptomatic;'d'i.e., May cause prolonged menstural bleeding; &'e'i.e., Occurs in 46 to 56 decade Adenomyosis

- A condition characterized by the presence of ectopic glandular tissue found in muscle.
- It usually refers to ectopic endometrial tissue (the inner lining of the uterus) within the myometrium (the thick, muscular layer of the uterus).
- The condition is typically found in women between the ages of 35 and 50.
- Patients with adenomyosis can have dysmenorrhea & menorrhagia.
- In adenomyosis, basal endometrium penetrates into hyperplastic myometrial fibers.
- Therefore, unlike functional layer, basal layer does not undergo typical cyclic changes with menstrual cycle.

203. Not done in Category 2 NST –

g) Changes in maternal position

h) Oxygen supplementation

i) Avoiding maternal pushing

j) Uterine stimulation

k) Intravenous fluid administration

Correct Answer - D

Ans. is'd'i.e., Uterine stimulation

Intrauterine resuscitative measures for Category II NST:

- Supplemental oxygen
- Maternal position changes
- Intravenous fluid administration
- Correction of hypotension
- Reduction or discontinuation of uterine stimulation
- Administration of uterine relaxant
- Amnioinfusion
- Changes in second stage breathing and pushing techniques

NST Category II :

- These are indeterminate tracings.
- Not predictive of fetal acid - base status.
- Cannot be classified as category I or III.
- Require continued surveillance and re-evaluation. meet the "reactivity"
- Except for patterns that are sinusoidal, category III tracings require the combination of absent variability plus one or more additional finding. Such tracings are classified as category II.

31. Which of the following are not true regarding genital ulcerations ?

g) Syphilis has a large single nontender ulcer with indurated margins

h) Multiple erythematous lesions with tender lymphadenaopathy is seen in LGV

i) Beefy red ulcer with indurated ulcer is seen in donovanosis

j) Multiple painful bleeding ulcer with tender lymphadenopathy in Chancroid

k) Multiple painful ulcers in HSV

Correct Answer - A:C:D:E

Ans. (A) Syphilis has a large single nontender ulcer with indurated margins (C) Beefy red ulcer with indurated ulcer is seen in donovanosis (D) Multiple painful bleeding ulcer with tender lymphadenopathy in Chancroid (E) Multiple painful ulcers in HSV

[Ref: Khopkar's 6/e p. 232]

Lesion of primary syphilis:

- Chancre (Hard chancre) - punched out ulcer

Lesion characteristics:

32. Single lesion
33. Painless
34. Avascular(non-bleeding)
35. Firm induction
36. Lymphadenopathy which is painless, firm and nonsuppurative.

- Sites of involvement are penis in heterosexual males; rectum, anal

canal, mouth in homosexual males; and cemix and labia in females.

Lesions of LGV:

- **First stage (Primary LGV)** : - Self limited, Single, asymptomatic, painless, nonbleeding genital ulcer.

Secondary stage:

- Painful inguinal lymphadenopathy (Remember) Wcer is painless but lymphadenopathy is tender & painful).
- Swollen lymph nodes coalesce to form bubos,i.e., matted lymph nodes.
- Buboes may rupture to form discharging sinus.
- Groove's sign > Enlarge lymph nodes both above and below the inguinal ligament.
- **Tertiary LGV (genitorectal syndrome)** : - Characterized By proctocolitis.

Lesions of Donovanosis:

. Painless

g) Bleeding with red granulation tissue

h) Indurated

i) Red & velvety (beefy red)

- Subcutaneous granulomas of inguinal region in Donovanosis looks like enlarged lymph node, but these are not enlarged lymph nodes.
- Therefore, these are known as pseudo buboes.
- Sites of lesions are genitalia (90%), inguinal (10%o) and anal regions.
- Complications of Donovanosis are pseudo elephantiasis, phimosk, paraphimosis.

- Characterized by painful ulcers, bubo formation and painful inguinal lymphadenopathy.

. Multiple ulcers.

37. Non-indicated or soft induration
38. Paintul (Tender)
39. Bleed easily
40. Undermined, sloughed erythematous edges
41. Painful suppurative inguinal lymphadenopathy

Lesion of HSV:

- Often asymptomatic when symptomatic it present as multiple

vesicles, very painful,
- bilateral painful inguinal lymphadenopathy.
- Characteristic feature of herpes genitalis is its frequent recurrence.

g) A young male developed ulceration over shaft which bleeds easily on touch, is tender with bilateral lymphadenopathy. The following are true regarding the condition -

k) Bilateral drainage of lymph nodes is essential

l) School of fish appearance is seen with smear microscopy

m) Medical treatment with antibiotics is mainstay of treatment

n) Azithromycin is the drug of choice

o) It is a case of Hard-chancre

Correct Answer - B:C:D

Ans. (B) School of fish appearance is seen with smear microscopy (C) Medical treatment with antibiotics is mainstay of treatment (D) Azithromycin is the drug of choice

- Chancroid is STD characterized by painful ulcers, bubo formation and painful inguinal lymphadenopathy.
- Caused by H.ducreyi, a gram negative coccobacilli which is arranged in parallel chains giving a "School of fish" or ”railroad track" appearance.
- Incubation period of chancroid is 1-7 days.

Clinically it is characterized by: -

. Multiple ulcers.

g) Non-indicated or soft induration

h) Painful (Tender)

i) Bleed easily

. Undermined, sloughed erythematous edges
36. Painful suppurative inguinal lymphadenopathy

Diagnosis & Treatment

- Gram's staining of swab from the lesion may reveal a predominance of characteristic gram-negative coccobacilli.
- An accurate diagnosis relies on cultures of H.ducreyi from the lesion.
- **Azithromycin is the DOC for treatment.**
- Ceftriaxone, Ciprofloxacin, erythromycin are alternatives.

g) Which of the following organism is involved in causation of Pityriasis rosaceae?

41. Propionibacterium

42. Pityrosporum ovale

43. Malasezia furfur

44. Human herpes virus-6

45. Human herpes virus-7

Correct Answer - D:E

Ans. (D) Human herpes virus-6 (E) Human herpes virus-7

- P. rosea is a common scaly disorder, occurring usually in children and young adults (10-j5 years). Characterized by round/oval pink brown patches with a superficial, centrifugal scale, distributed over trunk in a Christmas tree pattern.
- The disease is thought to be viral disease, is self limiting, and subsides in 6-12 weeks.
- The exact etiology is not known, but it is considered to be a viral disease; Human Herpesvirus 6 (HHV 6) and}Jtrrnian Herpesvirus 7 (HHV 7) may play a role.

207.

Spongiosis involves which part of skin ?

g) Dermis

h) Epidermis

i) Stratum spinosum

j) Stratum corneum

k) Prickle cell layer

Correct Answer - B:C:E

Ans. (B) Epidermis (C) Stratum spinosum (E) Prickle cell layer

Spongiosis involves stratum spinosum (prickle cell layer) of the Epidermis.

208. Koebner's phenomenon is seen in ?

38. Pemphigus vulgaris

39. DLE

40. Lichen planus

41. Acne rosae

42. Genital warts

Correct Answer - B:C:E
Ans. (B) DLE (C) Lichen planus (E) Genital warts

k) Anaesthetic used for induction in pediatric surgery is ?

k) Propofol

l) Thiopentone

m) Ketamine

n) Diazepam

o) Etomidate

Correct Answer - A:B:E

Ans. (A) Propofol (B) Thiopentone (E) Etomidate Anaesthetics in Pediatric patients:

Induction

Inhalational induction:

- Inhalational agent with mask - Induction method of choice in children.
- Sevoflurane - Induction agent of choice in children.
- Used in N2O +O2 gas mixture.
- Halothane - 2nd Induction agent of choice.

Intravenous induction:

- THiopental/propofol (Outpatient surgery).
- Ketamine - preferred in children with hypovolemia.
- Etomidate - preferred in children with unstable cardiovascular status

210. Atracurium is metabolized by -

g) Conjugation

h) Hoffman degradation

i) Pseudocholineaterase

j) Methylation

k) None

Correct Answer - B

Ans. B. Hoffman degradation

- The unique feature of atracurium is inactivation in plasma by spontaneous non enzymatic degradation (Hofmann elimination).
- Consequently its duration of action is not altered in patients with hepatic/renal insufficiency or hyperdynamic circulation ---> Hence, preferred muscle relaxant for such patients as well as for neonates and the elderly.
- Atracurtum is metabolised to laudanosine that is responsible for seizures.
- Cause histamine release > Hypotension, bronchoconstriction & flushing.

45. Ventilator associated complication(s) is/are ?

g) Barotrauma

h) Subglottic stenosis

i) Pneumoperitoneum

j) Paralytic ileus

k) Increased cardiac output

Correct Answer - A:B:C:D

Ans. (A) Barotrauma (B) Subglottic stenosis

46. Pneumoperitoneum (D) Paralytic ileus [Ref Essentials of anesthetic emergencies p. 123]

Complications of mechanical ventilator:

- Barotrauma - Cause pneumothorax, pneumomediastinum, bronchopleural fistula, pneumopericardium/cardiac tamponade, Pneumoperitoneum, systemic air embolism and pulmonary embolism.
- Hemodynamic complications
- Nosocomial infections: Pneumonia, UTI
- Acid-base disturbances - Respiratory alkalosis due to CO_2 washout.
- Water retention.
- GIT - Mainly paralytic ileus.

g) Headache following dural puncture, treatment is:

g) ACTH

h) Clonidine

i) Steroids

j) Blood

k) Caffeine

Correct Answer - A:C:E

Ans. (A) ACTH (C) Steroids (E) Caffeine

Ref: Morgan's 4,h/e p. 297, Lee's 13h/e p. 509, 510; www.cochrane.org

Post dural puncture headache:

- Due to CSF leak from a dural defect & decreased ICT.
- Most common complication of spinal anesthesia.
- Typical location is **bifrontal or occipital.**
- Onset
- Usually 12-72hotrs following the procedure.
- Lasts for 7-10 days.

Management:

- Use of small bore needle can prevent pDpH.

Conservative treatment:

- Analgesics (NSAIDs), oral or i.v. fluids.
- **Drugs:** Cosyntropin, caffeine, hydrocortisone, gabapentin, theophylline, sumatriptan, pregabalin and ACTH.

213. Pre-anaesthetic medication is given to ?

48. Reduce anxiety and fear

49. Reduction of secretion of saliva

50. To produce amnesia

51. To prevent undesirable reflexes

52. Prevent vomiting

Correct Answer - A:B:C:D

Ans. (A) Reduce anxiety and fear (B) Reduction of secretion of saliva (C) To produce amnesia (D) To prevent undesirable reflexes

[Rel KDT 6h/e p. 378]

Preanaesthetic medication:

Aims:

k) Relief of anxiety and apprehension preoperatively and to facilitate smooth induction.

. Amnesia for preoperative and postoperative events.

45. Supplement analgesic action of anaesthetics and potentiate them.

46. Decrease secretions and vagal stimulation (undesirable reflex).

47. Antiemetic effect extending into postoperative period.

48. Decrease acidity and volume of gastric juice so that it is less damaging if aspirated.

214. Methods of regional anaesthesia is/are ?

k) Bier's block

l) Spinal anaesthesia

m) Rapid sequence induction

n) Conscious sedation

o) Surface anaesthesia

Correct Answer - A:B:E

Ans. (A) Bier's block (B) Spinal anaesthesia (E) Surface anaesthesia

[Ref: Morgan 4/e p. 269-270]

Regional anaesthesia (Local anaesthesia):

Methods are:

50. Topical anaesthesia (surface anaesthesia)
51. Infiltration anaesthesia
52. Intravenous regional anaesthesia (Bier's block)
53. Conduction block (either field block or nerve block)
54. Spinal anaesthesia
55. Epiduralanaesthesia

g) If we increase the depth of chest compression in CPR, it causes -

k) Decreased mortality

l) Increased brain perfusion

m) Increased aortic pressure

n) Rib fracture

o) Hemothorax

Correct Answer - A:B:C:D:E

Ans. (A) Decreased mortality (B) Increased brain perfusion g) Increased aortic pressure (D) Rib fracture (E) Hemothorax

Increasing the depth of chest compression also carry an increased risk of complications like :-

- Rib and / or sternal fracture
- InjurY to diaPhragm or lung
- Pneumothorax, pneumomediastinum, pneumopericardium
- Hemothorax

k) Hypotensive shock refractory to fluid, what is contraindicated ?

k) Ketamine

l) Atropine

m) Fentanyl

n) Thopentone

o) Etomidate

Correct Answer - C:D

Ans. (C) Fentanyl (D) Thopentone

[Ref: Wroerlee textbook of anaesthesia p.54]

- In hypotensive patients, no sedative, hypnotic or opiate should be given.
- Fentanyl is an opiate and thioPentone is a sedative (barbiturate).
- Ketamine increases cardiac output and blood pressure - Intravenous anaesthetic of choice in shock.
- Etomidate produces little cardi-ovascular anil respiratory depression . Agent of choice for cardiovascular surgeries (bypass aneurysms, valve surgery).
- Etomidate is most cardiostable inducing agent.
- If hypotension is due to bradycardia --> Atropine is the drug of choice.

217. Egg shell calcification is seen in ?

g) Silicosis

h) Sarcoidosis

i) Lymphoma after treatment

j) Aspergilloma

k) TB

Correct Answer - A:B:C:E

Ans. (A) Silicosis (B) Sarcoidosis (C) Lymphoma after treatment (E) TB

Calcification patterns on chest radiograph

Egg-shell calcification of lymph nodes:

- Defined as she like calcifications up to 2 mm thick in periphery of at least two lymph nodes in at least one of which, the ring of calcification must be complete and one of the affected lymph nodes must be at least I cm in maximum diameter.

Important causes are : -

- Progressive massive fibrosis (PMF)
- Coccidioidomycosis
- Tuberculosis
- Silicosis (m.c. cause)
- Coal worker's Pneumoconiosis
- Sarcoidosis
- Blastomycosis
- Histoplasmosis
- Scleroderma
- Lymphoma following radiation
- Amyloidosis

56. Hilar lymph node calcification is seen in ?

g) Silicosis

h) Amyloidosis

i) Beryliosis

j) Asbestosis

k) Scleroderma

Correct Answer - A:B:E

Ans. (A) Silicosis (B) Amyloidosis (E) Scleroderma

Irregular central popcorn calcification:

- It is a cluster of sharply defined irregularly lobulated calcification usually in pulmonary nodule.
- It is characteristic of hamartoma.

Laminated or central pattern:

- Granuloma

Punctate Pattern:

- Tuberculoma or coccidioidomycosis

(J) Radiological signs of intestinal perforation is/are-

57. Pneumoperitoneum

58. Regler's sign

59. Caterpillar sign

60. Bear sign

61. Football sign

Correct Answer - A:B:E

Ans. (A) Pneumoperitoneum (B) Regler's sign (E) Football sign

Perforation results in pneumoperitoneum:

- Best view to see PneumoPeritoneum is chest x-ray in erect position which detects air under the dome of the diaphragm.
- 1-2 ml of free air can be detected under the right dome (between the liver anil right ilome of diaphragm) provided the patient is made to stand or sit at least 10 minutes prior to taking radiograPh.
- Visualization of falciform ligament due to the presence of air on either side of the ligament - Falciform ligament sign.

Football sign:

- Presence of large quantities of air which form an interface with free intraperitoneal fluid.

Regler's sign or double wall sign:

- Visualization of both aspects of bowel wall due to the presence of intraluminal as well as extraluminal air.

Cupola sign:

- Large amount of gas under the diaphragm. It should be noted that air is visualized below the central tendon of diaphragm not below the

dome as occur in upright x-rays.

Inverted 'V' sign:

- Lateral umbilical ligament is visualized in lower abdomen.

Triangle sign (Doge's cap sign):

- Triangular (doge's cap), crescent shaped or semicircular collection of air in the Morison'spouch.

220. Unit(s) of absorbed radiation ?

g) Rad

h) Gray

i) Curie

j) Rem

k) Sievert

Correct Answer - A:B

Ans. (A) Rad (B) Gray

[Ref: Bhadhury 2d/e p. 197 & Internet source]

	SI unit	**Conventional unit**
Radioactivity	Becquerel (Bq) 1 Bq = 1 disintegration per second 1 Ci = 3.7×10^{10} disintegrations per second =37 GBq	Curie (Ci)
Absorbed dose	Gray (Gy) 1 Gy = 1 J/kg = 100 rad	rad
Effective dose	Sievert (Sv) 1 Sv = 100 rem	rem
Linear energy transfer	Newton (N) 1 N = 1 J/m 1 keV/μm = 1.6×10^{-13} N	keV/μm

. Isotope(s) used for brachytherapy is/are ?

g) Radon -222

h) Radium -226

i) Iodine-125

j) Cobalt - 60

k) Cesium -137

Correct Answer - A:B:C:D

Ans. (A) Radon -222 (B) Radium -226 (C) Iodine-125 (D) Cobalt - 60

[Ref: Prez & Brandy's Radiation Oncologist 5th/e p, 54]

- Three main types of radiotherapy depending upon the position of the source of radiation.

External beam radiotherapy (EBRT) or Teletherapy:

- X-rays beams (Linear acceleration).
- Gamma rays: - Cobalt - 60 beam or Cesium 137.
- Particulate beams

Internal radiotherapy or brachytherapy:

- In brachytherapy, the radiation source in close contact with tumor. The principle is to use an Intra or fuxta lesional radiation implant to irradiate the tumor in vicinity. Sealed source in placed within or near the tumor i.e., Short distance therapy.

Subtypes:

- **Interstitial**

Removable/Temporary sources or implants	**Permanent sources or implants**
Iridium - 192 (Ir - 192)	Cesium - 131 (Cs - 131)

Cesium - 137 (Cs - 137)	Yttrium
Cobalt - 60 (Co - 60)	Gold - 198 (Au - 198)
Californum	^{125}I
Radium - 226 (Ra - 226)	Radon - 222 (Rn - 222)
Tantalum	Pallidum - 103 (Pd - 103)

Note : Co - 60 and Cs - 137 are used for both teletherapy and brachytherapy.

Intracavitary:

- Most important use of intracavitary radiation is in patients with cancer of the cervix after external radiation.
- It is also used in cancer of uterus, esophageal cancer and lung cancer.

Removable	Permanent
Radium	Colloidal radioactive gold
Cesium – 137	Yttrium
Coblat – 60	Radioactive iodine (^{131}I)

Mould:

- **Used in penis carcinoma**

High dose radiation:

- Most common radioisotope used for HDR brachytherapy is iridium-I92.
- Other isotopes which have been used are Cobalt-60 and cesium-137

g) Isotope(s) used for metastatic bone pain is/are ?

(K) Strontium -89

(L) Samarium-153

(M) Phosphorus - 32

(N) Thallium

(O) Selenium

Correct Answer - A:B:C

Ans. (A) Strontium -89 (B) Samarium-153 (C) Phosphorus - 32 [Ref: Radiation oncology th/e P. 141]

- Radiopharmaceuticals (radioactive isotopes) used for metastatic bone pain are strontium (Sr - 89), Samarium (Sm - 153), rhenium (Re - 186), Phosphorus-32 and Tin- 117 (Sn- 1 77).

56. Drug(s) used for radiation protection is/are ?

k) Metronidazole

l) Amifostine

m) Actinomycin -D

n) Pentoxiphylline

o) Hydroxyurea

Correct Answer - A:D

Ans. (A) Metronidazole (D) Pentoxiphylline

[Ref: Orford oncologist 2nd/e p. 462]

Radiosensitizers:

- Radiosensitizers are compounds that apparently promote fixation of the free radicals produced by radiation damage at molecular level.

A) Hypoxic cell radiosensitizers:

- Nitroimidazoles: Metronidazole, Misonidazole, Etanidazole, Nimorazole, Pimonidazole
- Anticancers:- Actinomycin D (Dactinomycin), Bleomycin, Cisplatin, Doxorubicin, 5-FU,
- Fludarabine, Gemcitabine, Hydroxyurea, Paclitaxel, mitomycin- C, Topotecan, Vinorelbine.

Hyperbaric oxygen (most potent)

m) Non hypoxic cell radiosensitizers:

- Haloginated pyrimidines:- BUdR, IUdR.
- **Cisplatin and 5-FU are two of the most commonly used radiosensitizing agents.**

58. Cannabis abuse may be associated with ?

k) Psychosis

l) Schizophrenia

m) Anxiety

n) Flash-back

o) OCD

Correct Answer - A:B:C:D
Ans. (A) Psychosis (B) Schizophrenia (C) Anxiety (D) Flash-back
[Ref Kaplan & Sadock's p.420]
Cannabis intoxication:

- Most common physical effects are red eye (conjunctival injection) and mild tachycardia.
- Increased appetite ("the munchie")
- Dry mouth
- Lightheadedness
- Euphoria
- Sense of floating in air
- Derealization
- Depersonalization
- Synesthesia (stimulation of one sensory modality produces sensation of other modality).

61. Treatment madality(ies) used in mania is/are ?

k) ECT

l) Lamotrigine

m) Mood stabilizer

n) Olanzapine

o) Valproate

Correct Answer - A:C:D:E

Ans. (A) ECT (C) Mood stabilizer (D) Olanzapine (E) Valproate

Treatment of bipolar disorder:

Treatment of acute mania:

. Lithium
. Valproate
. Carbamazepine, Oxcarbazepine
. Atypical 6 typical antipsychotics: Olanzapine, risperidone, quetiapine, ziprasidone, aripiprazole, Haloperidol, Chlorpromazine.
g) Benzodiazepines

Treatment of acute bipolar depression:

. Antidepressants with a mood stabilizer - Lamotrigine or ziprasidone.

Maintenance treatment:

k) Lithium (drug of choice)
l) Carbamazepine.
m) Valproate, other drugs which can be used are topiramate, lamotrigine, atypical antipsychotics (aripiprazole, olanzapine, quetiapine, risperidone, Clozapine) and Gabapentin.

Treatment of rapid cycling:

. Valproate is the drug of choice.
. Other drugs used are Carbamazrpine, Lithium, lamotrigine.

k) True about somatoform disorders and somatization disorder?

k) There are physical symptoms without physical basis

l) Somatization disorder is characterized by multiple physical symptoms

m) Conversion disorder is a somatization disorder

n) Hypochondriasis is a somatoform disorder

o) There are pain and GI symptoms in somatization disorders

Correct Answer - A:B:D:E

Ans. (A) There are physical symptoms without physical basis 68. Somatization disorder is characterized by multiple physical symptoms (D) Hypochondriasis is a somatoform disorder

k) There are pain and GI symptoms in somatization disorders

ACCORDING TO DSM -TV CLASSIFICATION:

- Somatoform disorders are characterized by repeated presentation with physical symptoms but without any physical basis.

Somatoform disorders are: - (i) Somatization disorder, (ii) Conversion disorder, (iii) Hypochondriac, (iv) Body dysmorphic disorder ft) Somatization pain disorder.

Somatization disorder:

- Multiple recurrent somatic symptoms of long duration caused by psychological basis and no physical illness.

Diagnostic criteria:

- Four pain symptoms - Pain in Head (headache), abdomen, back, joint, extremities,
- chest, rectum, during menstruation or sexual intercourse or

urination.

- Two gastrointestinal symptoms - Nausea, bloating, vomiting, diarrhea.
- One sexual symptom - Erectile dysfunction (Impotence), ejaculatory dysfunction.
- One pseudoneurological symptom - Mainly glove & stocking anesthesia, Paresthesia,

SOMATIC SYMPTOMS & RELATED DISORDERS (DSM-V):

- DSM-5 has replaced somatoform disorders (of DSM-IV) with somatic symPtoms and related disorders.

Important disorders in this group are :-

k) Somatic symptom disorder (complex somatic symptom disorder)
l) Illness anxiety disorder
m) Conversion disorder (functional neurological disorder)
n) Factitious disorders
o) Other specified somatic symptoms & related disorders (e.g' Pseudocyesis)

Note: Body dysmorphic disorder is replaced along with OCD & related disorder,

227. Legal psychiatric conditions is/are ?

(K) Mania

(L) Delirium

(M) OCD

(N) Delusion

(O) Phobia

Correct Answer - A:B:C:D:E

Ans. (A) Mania (B) Delirium (C) OCD (D) Delusion (E) Phobia

- The legal term 'mentally ill person' as used in Mental Health Act 1987 (of India), means a person who is in need of treatment by reason of any mental disorder other than mental retardation.
- **Psychoses**

66. Organic Psychoses

. Dementia
. Drug induced psychosis : Alcohol, Heroin, Cannabis, LSD, Cocaine.
. Confusional states and psychosis following epilepsy, pregnancy and childbirth, and trauma.
. Delirium

67. Functional psychoses

. Schizophrenia
. Paranoid states : Delusions
k) Affective disorders (Mania; depression)

B) Neurotic disorders

. Anxiety neurosis
. Phobia
. Hysteria
. OCD

C) Various organic disorders

228. Feature(s) of catatonic schizophrenia ?

g) Waxy flexibility

h) Automatic obedience

i) Somatic passivicity

j) Rigidity

k) Mutism

Correct Answer - A:B:C:D:E

Ans. (A) Waxy flexibility (B) Automatic obedience (C) Somatic passivicity (D) Rigidity (E) Mutism

[Ref: Neeraj Ahuja e p. 63; Essentials of clinical psychiatry 4th/e p. 635]

Features of catatonic schizophrenia may be

:-I) Excited catatonia:

- Characterized by increased psychomotor activity, i.e. restlessness, agitation, excitement, aggressiveness, violence. The impulsive activity occurs in response to hallucinations and delusions.

2) Stuporous (retarted catatonia) :

- Characterized by extreme retardation of psychomotor activity.It includes mutism, rigidity, negativism, posturing, stupor, echolalia, echopraxia, catalepsy (waxy flexibility), ambitendency, gegenhalten, stereotypes, stupor, mannerism, Grimacing, automatic obedience.

229. True about Alzheimer's disease?

72. Early involvement of short term memory

73. Late involvement of long term memory

74. Agnosia

75. Clouding of consciousness

76. Depression

Correct Answer - A:B:C:E

Ans. (A) Early involvement of short term memory (B) Late involvement of long term memory (C) Agnosia (E) Depression [Ref: Kaplan 6 Saddock's 10'h/e p. 331]

- Alzheimer's disease usually presents in 5th or 6th decade.
- Gradually progressive disease.

Features:

Memory impairment:

. Gradual development of forgetfulness is the major symptom.

k) Initially short term memory (memory for recent events and learning new information) is involved.

. Long term memory is involved late.

69. Episodic type declarative memory is affected mostly.

70. No impairment in consciousness. **Associated disturbance** -

- Disorientation, aphasia, apraxia, agnosia (anosognosia, prosopagnosia) acalculia, lexical anomia, judgement imPairment.

Psychiatric symptoms:

- Visual hallucination, Depression and anxiety.

invalid question id