1. True about meiosis I:

a) Sister chromatids replicate

b) Sister chromatids separate

c) Haploid daughter cells

d) Homologous chromosomes exchange material

e) Homologouschromosomesseparate

Correct Answer - C:D:E

Ans. is 'c' i.e., Haploid daughter cells; 'd' i.e., Homologous chromosomes exchange material! &'e' i.e. “Homologous chromosomes separate

Meiosis I is divided into following phases :-

1. Prophase I:

- Longest phase.

It is further subdivided into : _

1. Leptotene: Diffuse chromatin starts condensing into chromosomes and chromosomes start appearing in this stage.
2. Zygotene: In this stage Homologous chromosomes pair up. This process is called 'synapsis' or conjugation and each pair is called bivalent.
3. Pachytene: In this stage two chromatids of each pair separate and is called tetrad. Then there occurs 'crossing-over',i.e., one or both chromatids of one homologous chromosome crosses over with those from other homologous chromosome of that pair forming synaptonemal complex. The point of crossing over are called, chiasmata.
4. Diplotene: The two chromosomes of bivalent try to move apart. There is exchange of genetic material between Homologous

chromosomes

5. Diakinesis: In this stage the reorganized chromosomes move apart. Each bivalent can now be seen to contain four chromatids linked by a common centromere, while non-sister chromatids are linked by chiasmata.

2. Metaphase I : The bivalents become arranged around the equator of the spindle, attached to their centromeres.

3. Anaphase I : Spindle fibres pull homologous chromosomes. This separates the chromosome into two haploid sets' one set at each end ofspindle.

4.Telophase I : Two daughter cells are formed each containing 23 chromosomes (Haploid), each consisting of two chromatids (2C).

2. True about Fibrous skeleton ofheart –

a) Fibrous ring around mitral valve

b) Tendon of infundibulum is between pulmonary & aortic valve

c) Trigonumdextrum is between mitral & tricuspid valve

d) Trigonumsinistrum is between mitral and aortic valve

e) Tendon of Todaro is between central fibrous parts to Eustachian valve

Correct Answer - A:B:D:E

Ans. is 'a' i.e., Fibrous ring around mitral valye; 'b' i,e., Tendon of infundibulum is between pulmonary & aortic valve; 'd'i.e., Trigonumsinistrum is between mitral and aortic valve; &'e' i.e., Tendon of Todaro is between central fibrous parts to Eustachian valve

Fibrous skeleton ofheart:

- Fibrous ring surrounding the orifices of atrioventricular (mitral and tricuspid) orifices, pulmonary orifice and aortic orifice, along with some adjoining masses of fibrous tissue.
- Tendon of infundibulum is fibrous tissue between pulmonary and aortic ring.
- Trigonumfibrosumdextrum is fibrosus tissue between atrioventricular rigs (mitral and tricuspid) and aorta.
- Trigonumfibrosumsinistrum is fibrous tissue between the aortic and mitral rings.

3. Taste sensation from the tongue is/are carriedby –

a) Facial nerve

b) Glossopharyngealnerve

c) Hypoglossal nerve

d) Vagusnerve

e) Trigeminal nerve

Correct Answer - A:B:D
Ans, is 'a' i,e. Faeial nerve 'b' i,e. Glossopharyngeal nerve; & 'd' i,e. Vagus nerve
Taste sensation of tongue:

- Anterior 2/ 3rd part :Chorda tympani
- Posterior 1/3rd part & circumvallate papillae : Glossopharyngeal nerve
- Posterior most part: Internal laryngeal branch of Vagus nerve

4. 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. is'b'i.e., Contains mucous secreting glands;'d'i.e Made up of elastic cartilage &'e'i.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

5. 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 :-

1. True capsule - peripheral condensation of the connective tissue of the gland.
2. 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.
3. 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

6. 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).**

7. Which of the following statement(s) is/are true about phrenic nerve except -

a) It is primary motor supply to diaphragm

b) Accessory phrenic nerve joins the phrenic nerve near the first rib

c) Formed in front of scalenus medius muscle

d) It descends posterior to sternocleidomastoid

e) Gives sensory supply to central tendon of diaphragm

Correct Answer - C

Ans is. 'C i.e., Formed in front of scalenus medius muscle

- Lies anterior to anterior scalenus muscle
- Phrenic nerve is a mixed nerve & carries motor fibres to the diaphragm & sensory fibres from the diaphragm, pleura, pericardium & part of the peritoneum.

Origin:

- It arise in the neck from the ant. rami of the 3rd, 4th & 5th cervical nerves
- It is formed at the lateral border of the scalenus anterior, opposite the middle of the sternocleidomastoid at the level of the upper border of the thyroid cartilage.

Relations:

- It runs vertically downwards on the ant. surface of the scalenus ant. & in this part it is related anteriorly to

1. Prevertebral fascia
2. Inf. belly of omohyoid
3. Transverse cervical artery

4. Suprascapular artery
5. Internal jugular vein
6. Sternocleidomastoid mus.
7. Thoracic duct on left side.

- After leaving the ant. surface of the scalenus ant. the nerve runs downwards on the cervical pleura behind the commencement of the brachiocephalic vein. (on left side nerve leaves the scalenus ant. at a higher level & crosses in front of the first part of the subclavian art.). Here it crosses the internal thoracic artery (either anteriorly or posteriorly) & enters the thorax behind the 1st costal cartilage.

8. All are supplied by anterior interosseous nerve except –

a) Flexor carpi ulnaris

b) Brachioradialis

c) Abductor pollicis brevis

d) Flexor pollicis longus

e) Flexor digitorum superficialis

Correct Answer - A:B:C:E

Ans. is'a'i'e., Flexor carpi ulnaris 'b' i.e.,Brachioradialis;'c' i.e., Abductor pollicis brevis; &'e' i.e., Flexor digitorum superficial

- The anterior interosseous nerve (**volar** interosseous nerve) is a branch of the **median nerve** that supplies the deep muscles on the anterior of the forearm, except the ulnar (**medial**) half of the flexor digitorumprofundus.

9. True statement about shoulder joint –

a) Multipennate acromial fibres of deltoid are powerful abductor

b) Axillary nerve injury has no effect on abduction

c) Musculotendinous cuff stabilizes shoulder joint

d) Supraspinatusinitiatesabduction

e) Trapezius and serratus anterior act synergistically in abduction

Correct Answer - A:C:D:E

Ans. is'a'i.e., Multipennate acromial fibres of deltoid are powerful abductor; 'c'i.e., Musculotendinous cuff stabilizes shoulder joint; 'd' i.e., Supraspinatus initiates abduction; &'e' i.e., Trapezius and serratus anterior act synergistically in abduction

TYPE OF MOVEMENT	PLANE OF MOTION	AXIS OF MOTION	MUSCLES INVOLVED
Flexion	Saggital plane	Transverse axis	Pectoralis Major,Ant. fiber of deltoid, Coraco-brachialis, Biceps
Extension	Saggital plane	Transverse axis	Latissimus dorsi,Teresmajor,Post. fibers of deltoid, Triceps
Abduction	Frontal plane	Saggital axis	Deltoid, Supraspinatus
Adduction	Frontal plane	Saggital axis	Subscapularis,Pectoralis Major, Latissimus dorsi, Teres major

			Subscapularis,Pectoralis Major,
Internal Rotation	Transverse plane	vertical axis	Latissimus dorsi, Teres major
External Rotation	Transverse plane	vertical axis	Infraspinatus, Teres minor

10. Which is attached most anteriorly on the intercondylar areaof tibia intercondylararea of tibia (area b/w medial and lateral tibial plateau)-

a) Anterior cruciate ligament

b) Posterior cruciate ligament

c) Anterior horn of the lateral meniscus

d) Anterior horn of the medial meniscus

e) Ligamentum patellae

Correct Answer - D

Ans. is'd' i.e, Anterior horn of the medial meniscus

PROXIMAL END (upper end)

- Proximal (upper) end of tibia includes **medial & lateral condyles,** forming **tibial plateau.**
- It also includes **tibial Tuberosity** & **intercondylar area.**

Attachments on proximal end are:

- **Medial condyle:Semimembranous** (posteriorly), capsule of knee joint, **tibial (medial) collateral ligament (deep part)**, medial patellar retinaculum (anteriorly).
- **Lateral condyle:** illiotibial tract (anteriorly), capsule of superior tibiofibular joint.
- **Tibial Tuberosity:Ligamentum patellae**
- **Intercondylar area (from anterior to posterior);**

1. **Anterior horn of medial meniscus**
2. Anterior cruciate ligament (ACL)
3. Anterior horn of lateral meniscus

4. Posterior horn of lateral meniscus
5. Posterior horn of medial meniscys
6. Posterior cruciate ligament (PCL)

11. True about gas equation -

a) Gas constant is 0-9

b) PV = constant

c) PV = nRT

d) Diffusion is directly related to molecular weight of gas

e) Oxygen has more diffusion coefficient

Correct Answer - C

Ans. C. PV = nRT

Gas equation:

- The ideal gas law is quantitative expression of the foregoing principles: PV= nRT.
- Where P is the pressure, V is the volume, n is the number of gram molecules of the gas, R is the gas constant and T is the absolute temperature.
- Value of R is 0.082 (R = 0.082), when the units employed are atmosphere, litres and centigrade.
- The rate of infusion (D) is directly proportional to the pressure gradient (LP) and gas diffuses from higher pressure areas to lower pressure areas.
- Partial pressure gradient (gas pressure difference) is the basic factor which promote diffusion of a gas.
- Rate of diffusion is directly proportional to other factors also, viz. (i) Surface area of respiratory membrane (A); and (ii) Solubility of gas concerned (S).
- The rate of diffusion is inversely proportional to (i) The thickness of the respiratory membrane (d); and (ii) Molecular weight of the gas (MW).

12. True about Prostaglandins -

a) Derived from lipooxygenase pathway

b) First product is PG G2

c) PG E_2 causes vasoconstriction

d) PG F_{2a} causes bronchoconstriction

e) PG 1_2 causes fall in BP

Correct Answer - B:D:E

Ans. (B) First product is PG G2 (D) PG F_{2a} causes bronchoconstriction (E) PG 1_2 causes fall in BP

Prostaglandins (PG) synthesis:

- Prostaglandins (PGs), thromboxanes (TXs), prostacyclin (PGI) and leukotrienes are collectively called eicosanoids.
- Theses are derivatives of prostanoic acid.
- These eicosanoids are derived from 5, 8, 11, 14 eicosa tetraenoic acid (arachidonic acid), the fatty acid released from membrane lipids by the action of phospholipase-A2.

13. Which is/are feature(s) of prostaglandins -

a) 20 carbon atom compound

b) 10 carbon atom compound

c) Cyclopentane ring

d) -OH group at 15^6 position

e) Trans double bond at 10^{th} position

Correct Answer - A:C:D

Ans. (A) 20 carbon atom compound (C) Cyclopentane ring (D) -OH group at 15^6 position

(Ref: Harper jP/e p. 239-40; Lippincott 6h/e p. 213-15; Vasudevan 5th/e p. 167; Shinde 7/e p. 64-65; Satyanarayan 4th/e p. 664)

- Prostaglandins are 20 carbon compounds, containing a cyclopentane ring. They have hydrox (OH) group at position-15 and trans-double bond at position-13.

14. Which of the following is/are effect of increased 2,3-DPG on oxygen-hemoglobin dissociation curve?

a) ↑ ed affinity of heamoglobin to oxygen

b) ↓ ed affinity of haemoglobin to oxygen

c) Left shift of oxygen-hemoglobin dissociation curve

d) Right shift of oxygen-hemoglobin dissociation curve

e) No change in oxygen-hemoglobin dissociation curve

Correct Answer - B:D

Ans. (B) ↓ ed affinity of haemoglobin to oxygen (D) Right shift of oxygen-hemoglobin dissociation curve

[Ref: Ganong 25th/e p. 610-41; Guyton's 12'h/e p.j56-57; A K lain 6'h/e p. 430]

- Oxygen-hemoglobin dissociation curve is 2,3 DPG in RBC.
- DPG is an optional by-product of the glycolytic pathway.
- DPG binds with deoxygenated hemoglobin but not with oxygenated hemoglobin.
- Raised DPG concentration releases oxygen from oxyhemoglobin by shifting the following reversible reaction to the right.

Mechanism:

- One molecule of DPG binds with one mole of deoxyhemoglobin.
- Hence an increase in DPG concentration shifts the oxygen-hemoglobin dissociation curve to the right.
- Thus 2,3 DPG causes delivery (unloading) of O, to the tissues.
- Fetal hemoglobin has considerably less affinity for 2,3 - DPG than does adult hemoglobin therefore fetal hemoglobin has a greater

affinity for oxygen than adult hemoglobin.

- In human blood, the affinity of fetal hemoglobin for 2,3-DPG is only about 4O% that of adult hemoglobin.
- This makes fetal hemoglobin behave as if 2,3-DPG levels are low.

15. Oxygen consumption by the heart is determined by ?

a) Intramyocardial tension

b) Contractile state of the myocardium

c) Initial length of the myocardial muscle fiber

d) Heart rate

e) Basal oxygen consumption of myocardium

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

Ans. (A) Intramyocardial tension (B) Contractile state of the myocardium (C) Initial length of the myocardial muscle fiber (D) Heart rate (E) Basal oxygen consumption of myocardium

[Ref: Ganong 25th/e p. 550; Guyton's 12th/e p. 216-17]

Myocardial oxygen demand - Factors influencing:

- The basal metabolism of the heart tissue normally accounts of 25% of myocardial oxygen demand in resting individuals.
- Myocytes contraction (cardiac contraction) is the primary factor determining myocardial oxygen consumption above the basal leyek and cardiac contraction accounts for 75% of myocardial oxygen consumption.
- Myocardial wall tension,
- Heart rate (Chronotropy),
- Inotropic state (contractility).
- Myocardial wall tension is directly proportional to intraventricular pressure (P) and ventricular radius (R)' and inversely proportional to myocardial wall thickness (myocardial mass).
- Intraventricular pressure (intracavitary pressure) is determined by

aortic pressure (i.e., after load) and ventricular radius is determined by end diastolic ventricular volume (i.e., Preload).

16. Insulin causes intracellular shift of which of the following ion?

a) Na^+

b) K^+

c) Chloride

d) Calcium

e) Bicarbonate

Correct Answer - B

Ans. B. K^+

[Ref: Ganong 25th/e p. 433-34; Guyton's 12'h/e p. 613; A K lain 6,h/e p.748]

- Insulin lowers serum K+ concentration i.e., causes hypokalemia.
- The hypokalemic action of insulin is due to stimulation of K+ intake by the cells mainly in muscle and adipose tissue.
- Insulin increases the activity of Na+ - K+ ATPase in cell membrane, so that more K+ is pumped into cells.

17. Hypothalmk pituitary axis (HPA) controls all except -

a) Thyroid

b) Parathyroid

c) Pancreas

d) Testis

e) Adrenals

Correct Answer - B:C

Ans. (B) Parathyroid (C) Pancreas

[Ref: Ganong 25'h/e p. 308-14; Harrison's p. 401e-2]

- Almost all secretion by the pituitary is controlled by either hormonal or nervous signals from the hypothalamus.
- Secretion from the posterior pituitary is controlled by nette signals that originate in the hypothalamus and terminate in the posterior pituitary.
- Secretion by anterior pituitary is controlled by hormones called hypothalamic releasing and hypothalamic inhibitory hormones (or factors) secreted within the hypothalamus and then conducted to the anterior pituitary through hypothalamic hypophyseal portal vessels.

18. True statement about male reproductive physiology -

a) Sertoli cells secrete Miillerian inhibiting substance (MIS)

b) Inhibin is released by sertoli cell

c) Primary spermatocyte is diploid

d) LH and FSH are steroidal in nature

e) Inhibin stimulates follicle-stimulating hormone (FSH)

Correct Answer - A:B:C

Ans. (A) Sertoli cells secrete Miillerian inhibiting substance (MIS) (B) Inhibin is released by sertoli cell (C) Primary spermatocyte is diploid

Hormones of the Testes:

- The hormone-secreting cells in the testes are the leydig cells and sertoli cells.
- Leydig cells have receptors for LH and secrete all the androgens, i.e., testosterone (majorandrogen),dihydrotestosterone (DHT), androstenedione and dehydroepiandrosterone (DHEA).
- All of them have 19 carbon atoms.
- Sertoli cells are under the control of FSH, i,e., have receptors for FSH. When stimulated by FSH, these cells secrete
- androgen binding protein (ABP), inhibinand,MIS (mullerian inhibiting substance). Sertolicells also contain aromatase;
- the enzyme that converts androgens to estrogens.
- Beside these hormonal function, junction between adjacent sertoli cells forms blood-testis barrier which does not allow harmful substances to enter the area where spermatogenesis is going on.

- Sertoli cell ako have rec4,tors for androgens (testosterone) which stimulates spermatogenesis.
- Hormonal control of testicular function.
- LH is tropic for leydig cells and the secretion of testosterone is under the control of LH.
- FSH is tropic for sertoli cell and, stimulates sertoli cells to secrete inhibin and androgen binding protein (ABP).
- Primary spermatocyte is diploid.

19. Erythropoietin is/are produced by -

a) Juxtaglomerular cells

b) Interstitial cells of the peritubular capillary bed of the kidneys

c) Pars recta of PCT

d) Macula densa

e) Mesangial cell

Correct Answer - B

Ans. B. Interstitial cells of the peritubular capillary bed of the kidneys

[Ref: Ganong 25e/e p.706; Guyton's 12e/e p. 461; A K lain 6e/e p. 68]

- Erythropoietin is a glycoprotein hormone which stimulate erythrocyte production.
- In adults, about 85% of erythropoietin comes from the kidney (interstitial cells in peritubular capillary bed) and 15% from liver (Perivenous hepatocytes). Small amount is also produced in brain; and uterus and oviduct.

20. True about carotid sinus -

a) Chemoreceptor

b) Present in early part of internal carotid artery

c) Has glomus cells

d) Baroreceptor

e) Supplied by glossopharyngeal nerve

Correct Answer - B:D:E

Ans. (B) Present in early part of internal carotid artery
(D) Baroreceptor (E) Supplied by glossopharyngeal nerve
[Ref: Ganong 25th/e p.658; Guyton's l2h/e p.251-52; A Klain6th/e p. j27-29; Gray,s4p/e p. 447]

- Carotid sinus is a little bulge at the root of internal carotid artery,
- Is a type of a baroreceptor.
- It is innervated by the sinus nerve, a branch of glossopharyngeal (IX cranial) nerve.

21. Stress hyperglycemia occurs due to all except -

a) Increased level of ACTH

b) Increased level of cortisol

c) Decreased level of norepinephrine

d) Insulin resistance

e) Increased level of epinephrine

Correct Answer - C

Ans. C. Decreased level of norepinephrine

[Ref: Ganong 25th/e p.364; Guytan's 12'h/e p-598-556; Schwartz th/e p. 17-2a; A K lain 6'h/e p. 606; Bailey 6 Love 2Ch/e p. 4'9; CSDT 1l'h/e p. 103-05]

Stress Hyperglycemia:

- Suppression of insulin secretion coupled with increased secretion of glucagon, growth hormone, glucocorticoids (cortisol), and catecholamines (epinephrine ,
- norepinephrine) leads to hyperglycemia.

22. True about succinate dehydrogenase defect -

a) Deficiency of complex II

b) Tumorigenesis

c) Defect in krebs cycle

d) Defect in ETC

e) Mitochondrial encephalopathy

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

ANSWER- (A) Deficiency of complex II (B) Tumorigenesis (C) Defect in krebs cycle (D) Defect in ETC (E) Mitochondrial encephalopathy

- Mitochondrial succinate dehydrogenase (SDH) catalyses the oxidation of succinate to fumarate in the Krebs cycle (citric acid cycle).
- Succinate dehydrogenase complex is made up of four subunits - (i) SDH-A; (ii) SDH-B; (iii) SDH-C; and (iv) SDH-D.

Functions of succinate dehydrogenase are :?

1. Catalyses oxidation of succinate or fumarate in TCA cycle / citric acid cycle.
2. Transfers electrons from succinate to coenzyme Q (at complex II) → Succinate dehydrogenase acts as complex II in ETC.

- Defect in SDH causes defect in mitochondrial ETC. Which leads to mitochondria! encephalopathy and myopathy (encephalomyopathy) → This is due to mutation in SDHA subunit gene.
- Mutation in SDH-B,-C and -D subunits causes tumor formation,

especially paraganglioma / pheochromocytoma / carotid body tumor
Thus, these subunits are regarded as a tumor suppressor gene.

23. All are true about glycosaminoglycans except?

a) Protein associated with glycosaminoglycans is called core proteins

b) May be associated with connective tissues

c) Highly positively charged

d) Negatively charged

e) Component of ECM

Correct Answer - C

Ans. is 'c' i.e., Highly positively charged *[Ref Harper 30"/e p. 786]*

- Proteoglycans are carbohydrates to which small amount of protein is attached. Proteoglycans consists of 95% of carbohydrates and 5% of protein. To know the structure of proteoglycans, one should know the structure of glycosaminoglycans.
- Glycosaminoglycans are heteropolysaccharide (heteropolysaccharides are polysaccharides which contain two or more different monosaccharide unit or their derivatives). Glycosaminoglycans are linear (unbranched) polysaccharides, with repeating diasaccharide units. Each disaccharide unit consists of an amino sugar and an acid sugar (sugar acid).
- Glycosaminoglyclans were first isolated from mucin, therefore they are also called mucopolysaccharides.
- They are negatively charged.

24. Mechanisms for regulating enzyme activity are ALL EXCEPT

a) Covalent modification

b) Allosteric activation

c) Competitive inhibition

d) Induction of genes for enzyme synthesis

e) Repression of gene for inhibition of enzyme synthesis

Correct Answer - C

Ans. is (c) Competitive inhibition [Ref: *Harper 319`Ve* p. 89-94; *Lippincott 6"/e* p. *62-64; Vasudevan 5th ie* p. *42-50; Shinde*

- As the name suggests, there is competition between inhibitor and normal substrate for the catalytic binding site of the enzyme. This is because both the inhibitor and the normal substrate have similar structural configuration. Therefore, enzyme cannot differentiate these two and both can bind to the enzyme. Both ES and EI complexes are formed. But only ES can form product.

25. True statement are -

a) All lipid are fat

b) Linoleic acid is essential fatty acid

c) Hydrogenation converts unsaturated fatty acid to saturated fatty acid

d) Rancidity of food is due to lipid peroxidation

e) Hydrolysis of fat by acid is saponification.

Correct Answer - B:C:D

Ans. is "B" i.e., Linoleic acid is essential fatty acid; "C" Hydrogenation converts unsaturated fatty acid to saturated fatty acid; 'd' i.e., Rancidity of food is due to lipid peroxidation *[Ref Lippincott 6"Ie p. 181-1821.*

- The three polyunsaturated fatty acids (PUFAs), namely, linoleic acid linolenic acid and arachidonic acid are called essential fatty acids. they are called essential fatty acids because human beings require these fatty acids but cannot synthesize them.
- Addition of hydrogen atoms to unsaturated fatty acid refers to hydrogenation. It reduces the number of double bonds in unsaturated fats, As hydrogenation reduces number of double bonds, unsaturated fatty acids may get converted to saturated fatty acid, if all double bonds are reduced.
- The unpleasant odor and taste, developed by natural fats upon aging, is referred to as "rancidity". Rancidity may be due to hydrolysis (by lipase) or oxidation of fat.

26. True statement(s) about lipid digestion and absorption-

a) Micelles play an important role in lipids absorption

b) Absorption of long-chain fatty acids is greatest in the upper parts of the small intestine

c) Bile acid has no role in fat absorption

d) Fatty acids after absorption are reesterified to triglycerides in the enterocytes

e) Gastric lipase is the major enzyme

Correct Answer - A:B:D

Ans. is 'a' i.e., Micelles play an important role in lipids absorption; 'b' i.e., Absorption of long-chain fatty acids is greatest in the upper parts of the small intestine; & 'd' Le., Fatty acids after absorption are reesterified to triglycerides in the enterocytes *[Ref Ganong 25^{1h}/e p. 481-83; Harper ..30th Ie p. 253-54; Guyton 12thIe p. 421-23; Lippincott 6th/e p. 1761.*

- Micelles formation is the process in which digested fats (FFAs and monoglycerides) are incorporated into much smaller droplets (micelles) so that they can be absorbed more efficiently. Thus, micelles formation helps in absorption of digested fats.
- Fat digestion essentially begins in the duodenum with entry of pancreatic and biliary secretions. Pancreatic juice contains lipase (pancreatic lipase), the most important enzyme for fat digestion. The pancreatic lipase digests triglycerides (triacylglycerols) into free fatty acids and 2-monoglycerides (2-monoacylglycerols).
- After fat digestion, fatty acids and monoglycerides are absorbed in

the small intestine, especially in the jejunum and some amount also in ileum. In side the enterocyte, fatty acids and monoglycerides again form triglycerides.

27. Gluconeogenesis is favoured in fasting state by -

a) Activation of pyruvate carboxylase by acetyl CoA

b) Increased conversion of phosphoenolpyruvate to pyruvate by activation of pyruvate kinase

c) Increased fatty acid oxidation in liver

d) Hydrolysis of fructose l, 6-bisphosphate by fructose l, 6-bisphosphatase

e) None

Correct Answer - A:C:D

Ans. is 'a' i.e., Activation of pyruvate carboxylase by acetyl CoA; 'c' i.e., Increased fatty acid oxidation in liver; 'd' i.e., Hydrolysis of fructose 1,6-bisphosphate by fructose 1,6-bisphosphatase,

[Ref: Satyanarayan 4thie p. 258-63; Harper 30thie p. 188; Lippincott 6^{f}Ve p. 117-123; Shinde 7^{m}/e p. 347]

- The activation of pyruvate carboxylase and reciprocal inhibition of PDH complex by acetyl-CoA derived from the oxidation of fatty acids explain the action of fatty acid oxidation in sparing the oxidation of pyruvate and in stimulating gluconeogenesis.
- The reciprocal relationship between these two enzymes alters the metabolic fate of pyruvate as the tissue changes from carbohydrate oxidation (glycolysis) to gluconeogenesis during the transition from the fed to fasting state.
- Fructose-2-6-bisphosphate is formed by phosphorylation of fructose-6-phosphate by phosphofructokinase-2. This enzyme is a

bifunctional enzyme that also has fructose-2, 6-bisphosphatase activity which is responsible for breakdown of fructose-2, 6-bisphosphatase back to fructose-6-phosphate.

- This bifunctional enzyme is under allosteric control of fructose-6-phosphate which stimulates phosphofructokinase-2 activity and inhibits fructose-2, 6-bisphosphatase activity.

28. All are true about Hexose monophosphate pathway (HMP) except -

a) Produce NADPH in oxidative phase of pathway

b) Does not produce ATP

c) Occurs in testes, ovaries, placenta and adrenal cortex

d) Produces ribose 5-phosphate in oxidative phase of pathway

e) Glucose 6-phosphate dehydrogenase enzyme is involved

Correct Answer - D

Ans is. 'd' i.e., Produces ribose 5-phosphate in oxidative phase of pathway *[Ref Harper 30thie p. 196-200; Lippincott ele* p. *145; Satyanarayan 4thIe* p. *270-71]*

- HMP shunt is a multicyclic process in which 3 molecules of glucose-6-phosphate give rise to 3 molecules of CO, and 3 molecules of 5-carbon sugars (ribulose-5-phosphate).
- The latter are rearranged to generate 2 molecules of glucose-6-phosphate (through fructose-6-phosphate) and 1 molecule glyceraldehyde-3-phosphate. HMP shunt does not generate ATP.
- HMP shunt occurs in the cytosol. It is highly active in liver, adipose tissue, adrenal cortex, lens, cornea, lactating (but not the nonlactating) mammary gland, Gonads (testis, ovary) and erythrocytes. Activity of this pathway is minimal in muscle and brain, where almost all of the glucose is degraded by glycolysis.

29. Which of the following is not a pyrimidine base ?

a) Cytosine

b) Uracil

c) Guanine

d) Thymine

e) Adenine

Correct Answer - C

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

Purines	Pyrimidines
Adenine	Cytosine
Guanine	Uraci I
Thymine	

- Both purines (adenine and guanine) are found both in DNA & RNA.
- Among pyrimidines -
- Li Cytosine and uracil are found in RNA (thymine is not found in RNA).
- Cytosine and thymine are found in DNA (uracil is not found in DNA).
- In DNA, adenine is always paired with thymine by two hydrogen bonds; and guanine always paired with cytosine by three hydrogen bonds.

30. Post-translation modification of protein includes all except :

a) Removal of peptide

b) 5' capping

c) Intron splicing

d) Protein folding

e) Covalent modification

Correct Answer - B:C

Ans. is B., 5' capping & 'c i.e., intron splicing ***[Ref; Satyanarayan 4th ie p. 561-62; Harper 30` le p 426; Lippincott* 0-4 *p.* 443-441**

- 5' capping and intron splicing are post-transcriptional modification (not post-translational modification.
- This is the first processing reaction. 5'-end of mRNA is capped with 7-methylguansosine.
- This cap helps in initiation of translation (protein synthesis) and stabilizes the structure of mRNA by protecting from 5' -exonuclease
- Removal of introns (splicing) :? Eukaryotic genes contain some coding sequences which code for protein and some intervening non-coding sequences which do not code for protein.

31. Which of the following is not true about transcription

a) Synthesis of precursors for the large and small ribosomal RNAs

b) Formation of tRNA transcript

c) RNA polymerase II is responsible for the synthesis of precursors for the large ribosomal RNAs

d) RNA polymerase I is responsible for the synthesis small ribosomal RNAs

e) Binding of RNA polymerase on DNA

Correct Answer - C:D

Ans. is 'c' i.e., RNA polymerase II is responsible for the synthesis of precursors for the large ribosomal RNAs; & 'd' i.e., RNA polymerase I is responsible for the synthesis small ribosomal RNAs.

[Ref: Harrion 19th/e p. 427-28; Satyanarayan 4thie* p. *546, 566-68]

- RNA, eukaryotes have three different RNA polymerases : I,II,II
- RNA polymerase I : It catalyzes the synthesis of large ribosomal RNA (rRNA), i.e. 28S rRNA, 18S rRNA and 5.8S rRNA.
- These rRNAs are coded on class-I gene, i.e. class I gene is transcribed by rRNA. rRNAs are not translated into protein.
- RNA polymerase II :?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
- RNA polymerase III :? It catalyzes the synthesis of tRNA and 5S

rRNA. These products are coded by class III gene.

- Besides these three nuclear RNA polymerases, in a eukaryotic cell, a fourth type of RNA polymerase is found in mitochondrial matrix known as mitochondrial RNA polymerase (mtRNAP). Similar to prokaryotic RNA polymerase, mtRNAP catalyzes the synthesis of all the three types of RNA, i.e. mRNA, tRNA and rRNA

32. True about telomerase is?

a) DNA dependent RNA polymerase

b) RNA dependent DNA polymerase

c) Reverse transcriptase enzyme

d) Increased telomerase activity is seen in somatic cells

e) Telomerase increases the longevity of cells

Correct Answer - B:C:E

Ans. is 'b' i.e., RNA dependent DNA polymerase, 'c' i.e. Reverse transcriptase enzyme & `e' i.e. Telomerase increases the longevity of cells [Ref Harper 29th/e p. 358 & 28`"/e p. 315, 316; Robbin's 8th/e p. 40, 296]

- Telomerase is a reverse transcriptase (RNA dependent DNA polymerase) and is responsible for telomere synthesis and maintaining the length of telomers (replication of end of chromosome). Thus, telomerase provide longevity to the cells which contain this enzyme.
- Telomerase is absent from most of the somatic cells and hence they suffer progressive loss of telomeres and they exit the cell cycle.
- Senscent cells lack telomerase so their telomeres get shortened by critical length and these cells remains in Go phase

33. Ultraviolet radiation exposure can causes DNA damage by -

a) Pyrimidine dimers formation

b) DNA breakage

c) Thymine dimer formation

d) Acetylation of DNA

e) Methylation of DNA

Correct Answer - A:C

Ans. is 'a' Pyrimidine dimers formation; & 'c' i.e., Thymine dimer formation *[Ref Harper 30/e p. 761; Lippincott 0/e p. 412]*

- UV rays exposure results in covalent joining of two adjacent pyrimidines (usually thymine) to form pyrimidine dimers (thymine - thymine dimers or cyclobutane pyrimidine dimers). Cytosine - thymine and cytosine - cytosine dimers are also formed but at slower rates.
- Ultravialet (UV)radiations :- Induce dimerization of adjacent pyrimidines to produce pyrimidine dimers.

34. True about DNA photolyase -

a) Repair damage caused by UV light

b) Found only in human

c) Use visible light

d) Breaks pyrimidine dimers

e) None

Correct Answer - A:C:D

Ans. is 'a' i.e., Repair damage caused by UV light; 'c' i.e., Use visible light; & 'd' Breaks pyrimidine dimer *[Ref: Pankaj Naik* p. 496]

- Nearly all cells contain a photoreactivating enzyme called DNA photolyase. It is a DNA repair enzyme which bind to the damaged region of DNA and get excited by light energy absorbed by N^5, N'°-methenyltetrahydrofolate, which is bound to the photolyase. The process is called photoreactivation.
- The activation requires visible light, preferentially from the violet/blue end of the spectrum.
- The excited photolyase then cleaves the dimer into original bases.
- These enzymes occur in almost all living organisms exposed to sunlight, the only exception being placental mammals like humans and mice. Their catalytic mechanism employs the light-driven injection of an electron into the DNA lesion to trigger the cleavage of cyclobutane- pyrimidine dimers.
- Photolyase is particularly important in repairing UV induced damage in plants. The photolyase mechanism is no longer working in humans and other placental mammals who instead rely on the less efficient nucleotide excision repair mechanism.

35. True about DNA Gyrase -

a) A type of topoisomerase I

b) A type of topoisomerase II

c) Act on circular DNA

d) Overcome the problem of supercoils

e) None

Correct Answer - B:C:D

Ans. is 'b' i.e., A type of topoisomerase IL; "c' i.e., Act on circular DNA; 'd' , Overcome the problem of supercoils

[Ref *Lippincott etc 401; Stayanarayan [x]I[a]Ve p. 528J*

- Topoisomerase I → 4 Removes negative supercoiling.
- Topoisomerase II → Relaxes positive supercoils and forms negative supercoiling by condensation. of chromosome.
- Topoisomerase III → Can introduce single strand breaks during recombination that are required for DNA to be exchanged .

36. Correct dyad of disease and their respective inheritance pattern include?

a) Wilson disease - autosomal recessive

b) Cystic fibrosis - autosomal dominant

c) Marfan syndrome - autosomal recessive

d) Gardner syndrome - autosomal dominant

e) Duchene muscular dystrophy - X-linked recessive

Correct Answer - A:D:E

Answer- (A) Wilson disease - autosomal recessive (D) Gardner syndrome - autosomal dominant (E) Duchene muscular dystrophy - X-linked recessive

Autosomal recessive disorders

1) Metabolic - Cystic fibrosis, Phenyl ketonuria, Galactosemia, Homocystinuria, Lysosomal storage dis, alpha l-antitrypsin deficiency,

- Wilson disease, Hemochromatosis, Glycogen storage disorders.
- Autosomal dominant disorders

1. GIT- Familial polyposis coli, Gardner's syndrome
2. Skeletal - Marfan syndrome

- X-linked recessive disorders

1) Musculoskeletal - Duchene muscular dystrophy, Becker's dystrophy

37. True about RAS oncogene -

a) Tyrosine kinase has role in RAS activation

b) Most common form of oncogene in human tumors

c) It has an intrinsic GTPase activity

d) Mutation may result in carcinomatous growth

e) Belongs to growth factor category of oncogene

Correct Answer - A:B:C:D

Answer- (A)Tyrosine kinase has role in RAS activation (B) Most common form of oncogene in human tumors (C) It has an intrinsic GTPase activity (D) Mutation may result in carcinomatous growth

- In normal cells the activated state of this RAS protein is transient because normal RAS-proteins have intrinsic GTPase activity.
- Mutation in the RAS protein causes permanent activation of RAS protein which may result in carcinomatous growth.
- Activated RAS raf-I and acti tes mitogen- activating kinase (MAP-kinase) pathway.
- Point mutation of RAS family genes is the single most common abnormality of oncogenes in human tumor.

38. Which is/are not tumor suppressor gene(s)

a) TP53

b) RB

c) CD95

d) SKT11

e) RAS

Correct Answer - C:E
Answer- C,CD95 E,RAS

39. True about Dubin-Johnson syndrome -

a) Increased conjugated bilirubin

b) Usually associated with increased AST and ALT

c) Mutation in uridine diphosphate-glucuronyltransferase peptide Al

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.

40. Most common translocation in acute promyelocytic leukemia (APML) is

a) t (8:14)

b) t (9:22)

c) t (15:17)

d) t (8:21)

e) t (11:118)

Correct Answer - C

Answer- C, t (15:17)

- Acute promyelocytic leukemia (M3 by the FAB classification) is associated with a t(15;17) (q22;q11) translocation.
- Disseminated intravascular coagulation can occur in this disorder due to the release of procoagulant substances from the leukemic cells, especially during treatment.
- The t(4;11)(q21;q23) translocation is associated with acute lymphocytic leukemia (ALL) and undifferentiated leukemia.
- The t(6;9)(p23;q34) translocation is found in subtypes of AML with basophilia (M1, M2, M4).
- Burkitt's leukemia, which is related to Burkitt's lymphoma, is associated with t(8;14) (q 24;q32).
- The t(8;21) (q22;q22) translocation (choice D) is seen in M2 leukemia, also known as acute myeloid leukemia (AML) with maturation

41. 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

42. Most common aneuploidy compatible with life is

a) Down syndrome

b) Turner syndrome

c) Klinefelter's syndrome

d) Patau syndrome

e) None

Correct Answer - A

Answer- A, Down syndrome

- Most common aneuploidy in which infant can survive is trisomy-21 (Down 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 is/are true about sideroblastic anaemia

a) Basophils stippling in lead poisoning

b) Erythroid hypoplasia in bone marrow

c) Pappenheimer bodies is always present

d) Dimorphic RBC

e) Increased MCHC

Correct Answer - A:D

Answer- A,Basophils stippling in lead poisoning D,Dimorphic RBC

Important features of sideroblastic anemia are :-

- Ringeed sidetoblasts in bone marrow prussion blue reaction.
- Dimorphic blood picture,i.e. a mixture microcytic hypochromic and macrocytic erythrocytes
- Increased: Iron stores,serum ferritin, serum iton, transferrin saturation.
- Ineffective erythropoiesis because iron cannot be incorporated into erythrocytes.
- other feature: Decreased MCV MCH and MCHC; basophiling stippling in lead porsonizg Anisopoikilocytosis (varying
- sizes and abnormal shapes of RBCs),erthroid hyperplasia in bone marrow.

45. Multiple myeloma may be associated with

a) Fanconi's syndrome

b) Amyloidosis

c) Mixed cryoglobinemia

d) Cast nephropathy

e) Interstitial nephritis

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

Answer- A,Fanconi's syndrome B,Amyloidosis C,Mixed cryoglobinemia D,Cast nephropathy E,Interstitial nephritis

Factors contributing the damage are :-

- Bence Jones proteinuria and cast nephropathy
- Amyioidosis
- Light chain nephropathy, Glomerulopathy, tubule-interstitial nephritis.
- Vascular disease.
- Urinary tract obstruction.
- Fanconi's syrdrome
- Type I cryoglobulienmia is composed of a single mono- clonal Ig, usually IgM

46. True about autosomal recessive polycystic kidney disease (ARPKD)

a) Can be diagnosed in utero by USG

b) Hypertension develops in late stages of the disease

c) May proceed to renal failure before preschool age

d) Enlargement of kidney

e) Hematuria is early feature

Correct Answer - A:C:D

Answer- A,Can be diagnosed in utero by USG C,May proceed to renal failure before preschool age D,Enlargement of kidney

- The presentation in Polycystic disease of kidney is characteristically bilateral
- The bilateral enlargement can hardly be mistaken on routine examination
- USG and CT show multiple cysts in both kidneys
- The disease may present at any age but the most common age ofpresentation is in the 3rd or 4th decade.
- Both the kidney are grossly enlarged and situated with multiple cysts.
- Childhood polycystic kidney disease has autosomal recessive inheritance.

47. Feature(s) of type I membranoproliferative glomerulonephritis (MPGN)-

a) Tram track appearance on light microscopy

b) Subendothelial electron-dense deposits on electron microscopy

c) Immunofluorescence microscopy show positive florescence of IgG and C3 on dense deposit

d) Intramembranous dense deposit on electron microscopy

e) Mesangial hypocellularity

Correct Answer - A:B:C

Answer- A,Tram track appearance on light microscopy B,Subendothelial electron-dense deposits on electron microscopy C,Immunofluorescence microscopy show positive florescence of IgG and C3 on dense deposit

On light microscope, All types have following similar features.

1. The glomeruli are hypercellular → Due to exocapillary and endocapillary proliferation.
2. The glomeruli have lobular appearance accentuated by the proliferating mesangial cells and increased mesangial matrix.
3. Parietal epithelial crescent in many cases
4. GBM is thickened, which is most evident in the peripheral capillary loops.
5. The glomelular capillary wall shows a double contour or tram track appearance because of duplication of basement membrane as a result of new basement membrane synthesis.
6. Within the basement membrane there is interposition of cellular elements that give rise to the appearance of split basement

membrane.

- Type I and II MPGN differ in their ultrastructural features.
- Type I → Subendothelial deposits.
- Type II → Intramembranous deposition.
- Type I disease (most common)

Idiopathic

- Subacute bacterial endocarditis
- Type II disease (Dens deposit disease)

Idiopathic

- C3 nephritic factor associated
- Partial lipodystrophy
- Type III disease

Idiopathic

- Complement factor deficiency
- Systemic lupus erythematosus
- Hepatitis C
- Mixed cryoglubulinemia

48. PAX5 is/are marker for ?

a) Acute myeloid leukemia

b) T-cell lymphomas

c) Anaplastic large cell lymphoma

d) Hodgkin's lymphoma

e) B-lymphoblastic lymphoma

Correct Answer - D:E

Ans. is 'd' i.e., Hodgkin's lymphoma; & `e' i.e., B-Lyrnphoblastic lymphoma

[Ref: Robbins 9th (SEA)/e p. 590; Harrison 19th/e p. 699]

- Pax 5 (B-cell-specific activator protein) is mostly expressed in B-lymphocytes and B-cell lymphomas. It is expressed in developing CNS, some neuroendocrine tumors, and occasional myeloid leukemia.
- Pax 5 staining is positive in most Hodgkin lymphoma, B-cell NHL, and precursor B-cell lymphoblastic neoplasms.
- Lymphoplascytoid lymphoma, small cell carcinomas and Merkel cell carcinomas are also positive.
- T-cell lymphomas, plasma cell neoplasms, multiple myeloma, and plasmablastic lymphomas are negative for Pax 5.

49. Tumor marker for lung adenocarcinoma is/are

a) Positive for cytokeratin 5

b) Positive for cytokeratin 7

c) Positive for cytokeratin 20

d) Transthyretin (TTR) mutation

e) EGFR mutation

Correct Answer - B:E

Answer- B,Positive for cytokeratin 7 E,EGFR mutation

- Adenocarcinoma- AKT1, ALK, BRAF, EGFR, HER-2, K- RAS, MEK-1, MET, N-RAS
- CK7(+)ve- Breast Ca, Pancreatic Ca, Cervical Ca, adenocarcinoma of lung.

50. Which of the following is/are associated with synovial cell sarcoma

a) Translocation (9;22) (q34;q11)

b) SS18-SSX4 fusion genes

c) Translocation t (X;18) (p1 1;g11)

d) SS18-SSX1 fusion genes

e) None

Correct Answer - B:C:D

Answer- B,SS18-SSX4 fusion genes C,Translocation t (X;18) (p1 1;g11) D,SS18-SSX1 fusion genes

- Most synovial sarcomas show a characteristic chromosomal translocation t (X : 18) producing SYT-SS X1 or-SS X 2 fusion genes.The specific translocation is associated with poor prognosis.
- Histologic hallmark of biphasic synovial sarcoma is the dual lining of differentiation of the tumor cells (eg. epitheliat like and spindle cells)
- Calcified concrections can be present on X-rays

51. True statement about primary myelofibrosis

a) Hepatomegaly is the most common manifestation

b) Dry tap on bone marrow aspiration

c) Only potentially curative treatment is allogeneic stem cell transplantation

d) Splenomegaly is almost invariably present

e) Myeloblasts may be seen in peripheral blood

Correct Answer - B:C:D:E

Answer- B,Dry tap on bone marrow aspiration C,Only potentially curative treatment is allogeneic stem cell transplantation D,Splenomegaly is almost invariably present E,Myeloblasts may be seen in peripheral blood

- The hallmark of primary myelofibrosis is rapid development of obliterative marrow fibrosis.
- Myelofibrosis suppresses bone marrow hematopoiesis, leading to peripheral blood cytopenias.
- Peripheral blood picture shows leukoerythroblastosis (erythroid and granulocytic precursors in peripheral blood), and tear-drop erythrocytes (dacrocytes).
- Bone marrow biopsy is the investigation of choice.
- Unsuccessful bone marrow aspiration also called dry tap.
- Allogmeic bone marrow transplantation is the only curative treatment for PMF.

52. Newer inclusion in 2015 WHO classification of squamous cell carcinoma of lung include(s)

a) Clear cell variant

b) Papillary cell variant

c) Adenocarcinoma variant

d) Nonkeratinizing variant

e) Lymphoepithelioma-like carcinoma

Correct Answer - D

Answer- D, Nonkeratinizing variant

Old classification-

- Papillary
- Clear cell
- Small cell
- Basaloid

Newer Classification-

- Keratinizing SCC
- Nonkeratinizing SCC
- Basaloid SCC
- Preinvasive: SCC in situ

53. Which of the following can cause pulmonary embolism -

a) Pregnancy

b) OCP uses

c) Mitral regurgitation

d) Left ventricular failure

e) Excessive unaccustomed exercise

Correct Answer - A:B:D

Answer- (A) Pregnancy (B) OCP uses (D) Left ventricular failure

Patient Factors

- Age
- Obesity
- Varicose veins /superficial thrombophlibits
- Immobility
- Pregnancy
- PuerPerium
- High-dose oestrogen therapy or OCP use

Disease or surgical procedure-

- Trauma or surgery
- Malignancy
- Heart failure
- Paralysis of lower limb
- Infection

54. True about silicosis -

a) Lower lobe is more commonly involved

b) Radiographically seen as eggshell clacification

c) Lobar pneumonia is common

d) Associated with an increased susceptibility to tuberculosis

e) Histologically silica nodules consists of hyalinised center surrounded by concentric laminations of collagen

Correct Answer - B:D:E

Answer- (B) Radiographically seen as eggshell clacification
(D) Associated with an increased susceptibility to tuberculosis
(E) Histologically silica nodules consists of hyalinised center surrounded by concentric laminations of collagen

- Silicosis is a lung disease caused by inhalation of crystalline silicon dioxide (silica).
- Silicosis is a slowly progressive disease.
- Silicosis is associated with an increased susceptibility to T.B.

Silicosis is characterized-

- Nodules in the Upper zones of the lung → hard collagenous scars
- Radiologically, egg shell calcification can be seen in the lymph nodes.
- Histologically, silicosis lesions consist of concentric layers of hyalinized collagen surrounded by a dense capsule of more condensed collagen.

55. True statement about asbestos is -

a) May involve hilar lymph node

b) Asbestosis begins in the lower lobes

c) Pleural plaques consists of calcified hyalinzed collagenous tissue

d) High resolution CT scanning is the best imaging method

e) No risk of lung carcinoma

Correct Answer - A:B:C:D

Answer- (A) May involve hilar lymph node (B) Asbestosis begins in the lower lobes (C) Pleural plaques consists of calcified hyalinzed collagenous tissue (D) High resolution CT scanning is the best imaging method

- Asbestosis is an interstitial lung disease due to inhalation of asbestos particles.
- There are two distinct geometric forms of asbestos : (i) Serpentine (chrysolite), and (ii) Amphibole (crocidolite).
- Both serpentine and amphibole can cause all asbestosis related disease except for mesothelioma, which is usually associated with amphibole.
- Pleural plaques are the most common manifestation of asbestos exposure.
- There is diffuse interstitial fibrosis mainly involving lower lung fields.
- The lung is invaded directly, and there is often metastatic spread to the hilar lymph nodes.
- High resolution CT scanning is the best imaging method for asbestosis.

56. Cancer(s) caused by viral infections -

a) Kaposi sarcoma

b) Nasopharyngeal carcinoma

c) Hepatocellular cancer

d) Hodgkin's lymphoma

e) All

Correct Answer - A:B:C:D

Answer- (A) Kaposi sarcoma (B) Nasopharyngeal carcinoma (C) Hepatocellular cancer (D) Hodgkin's lymphoma

- DNA viruses → Herpesviridae → HHV-8 → Kaposis sarcoma
- Hepadnaviridae (HBV)→ hepatocellular carcinoma
- Flaviviridae (HCV) → hepatocellular carcinoma

EBV associated malignancies -

- Burkitt'slymphoma
- Nasopharynageal carcinoma
- Hodgkin's disease

57. Small vessel vasculitis is/are -

a) Kawasaki disease

b) IgA vasculitis

c) Carcinoma associated vasculitis

d) Anti-glomerular basement membrane (anti-GBM) disease

e) Takayasu arteritis

Correct Answer - B:C:D

Answer- (B) IgA vasculitis (C) Carcinoma associated vasculitis (D) Anti-glomerular basement membrane (anti-GBM) disease

i) ANCA positive

- Wegner's granulomatosis, Microscopic polyangitis, Churg strauss sytdrome, Good-posture syndrome.

ii) ANCA negative

- Henoch-Schonlein purpura, Bechets syndrome

58. Prolongation of both - activated partial thromboplastin time (aPTT) and prothrombin time (PT) may be seen in factor deficiency of -

a) Factor 2

b) Factor 5

c) Factor 10

d) Factor 8

e) Factor 9

Correct Answer - A:B:C

Answer- (A) Factor 2 (B) Factor 5 (C) Factor 10

- Partial thromboplastin time (pTT)
- It tests the intrinsic and common coagulation pathways. So, a prolonged PTT can results from deficiency of factor V, VIII (factor VIIIc, von willebrand factor), IX, X, X, XII, prothrombin or fibrinogen.
- Prothrombin time (PT)
- It tests the extrinsic and common coagulation pathways. So, a prolonged PT can results from deficiency of factor V,
- VII, X, prothrombin or fibrinogen.

59. True about haematological disorder -

a) Cryoprecipitate is used in treatment in haemophilia B

b) Both PT and aPTT are increased in DIC

c) Intravenous gamma globulin is useful in immune thrombocytopenic purpura

d) Hemophilia C: X-linked disorder

e) Platelet count is decreased in DIC

Correct Answer - B:C:E

Answer- (B) Both PT and aPTT are increased in DIC
(C) Intravenous gamma globulin is useful in immune thrombocytopenic purpura (E) Platelet count is decreased in DIC

1. Cryoprecipitate is used in Hemophilia A-

- It contains fbrinogen, factor VIIIc and vWF, and factor XIII.
- Used in hemophilia Aand von-Willebrand disease.

2. PT & aPTT are increased in DIC ald platelet count is decreased

- Blood film shows microangiopathic haemolytic anaemia.
- PT, thrombin time, and Activated Partial thromboplastin time all are prolonged.

3. IV immunoglobulin is useful in ITP

- IV immunoglobulin is the treatment of choicefor neonatal as well as childhood ITP.

4. Hemophilia C is caused by deficiency of factor XI.

- It is inherited as an autosomal recessive pattern.

60. Feature(s) of antiphospholipid syndrome is/are except -

a) Recurrent thrombosis

b) SLE is associated with primary antiphospholipid syndrome

c) It includes two types of antibodies - lupus anticoagulant and anticardiolipin antibody

d) Foetus loss may occur

e) Occur d/t defect in

Correct Answer - B:C:E

Answer- (B) SLE is associated with primary antiphospholipid syndrome (C) It includes two types of antibodies - lupus anticoagulant and anticardiolipin antibody (E) Occur d/t defect in

- In antiphospholipid syndrome there is hypercoagulabitity which results in recurreflt venous and arterial thrombosis.

Peripheralyenous systetn) DVT

- CNS → Cerebrovascular accident, sinus thrombosis migraine, epilepsy.
- Hematological → Thrombocytopenia, hemolytic anemia.
- Obstetrics → Abortion in 2rd & 3rd trimester (late fetal loss) is common but it may occur any time in pregnancy; recurrent abortion, eclampsia.
- Pulmonary → Pulmonary embolism, pulmonary hypertension.
- Cardiac → Limbman - Sack endocarditis, MI.
- Dermatological> Livedo reticularis, purpura, infarct/ulceration.
- Ocular → Amaurosis, retinal thrombosis.

- Adrenal → Infarction, hemorrhage.
- Musculoskeletal > Avascular necrosis of bone.
- Catastrophic antiphospholipid sydrome → Multiorgan infarction.

61. Long acting 13 agonist(s) which is/are used as once a day drug?

a) Salmeterol

b) Formoterol

c) Olodaterol

d) Vilanterol

e) Indacaterol

Correct Answer - C:D:E

Ans. C,Olodaterol D,Vilanterol & E,Indacaterol

Ref: Katzung 13'h/e p. j40; Rang 6 Dale 8'h/e p. 348

Long acting beta-1 agonist

- (8- 12 hrs)
- Given twice daily

.. Salmeterol
2. Formoterol
3. Arformoterol

Ultra-long acting

- (24 hrs)
- given once daily

.. Indacaterol
2. Olodaterol
3. Vilanterol

62. Drug of choice for strongyloides stercoralis?

a) Mebendazole

b) Albendazole

c) Ivermectin

d) Levamisole

e) Diethylcarbamazine

Correct Answer - C
Ans. C. Ivermectin
Ref: K.D,T, Thle p, 850i Katzung 13th/e p. 909; Satoskar Pharma 24'e p. 816; Rang and Dale |th/e p. 573

- Strongyloid - Ivermectin
- Anaerobes - Metronidazole
- Atypical Pneumonia (mycoplasma) - Erythromycin
- Cholera - Doxycycline
- Staphylococci - Penicillin
- VRSA - Linezolid
- P. Carinii (jiroveci) - Cotrimoxazole
- Pseudomonas - **Antipseudomonal beta-lactam + aminoglycos**ide
- Streptococcus - Penicillin
- Toxoplasma - Cotrimoxazole **Toxoplasma in pregnancy Spiramycin.**
- Rheumatic fever - Benzathine penicillin
- TB - INH with or without rifamPicin
- Rickettsia - TetracYclines

- Influenza A and B - Osetamivir
- Diphtheria - Penicillin / Erythromycin
- Anthrax
- Ciprofloxacin / Doxycycline + Pertussis - ErYthromYcin
- HSV - AcYclovir
- LePtosPirosis
  Milder - Oral amoxicillin
  Severe - Iv Penicillin G
- Lyme's disease - DoxycYcline
- Syphilis - Penicillin G
- Pertussis - ErYthromYcin
- Actinomycosis - Penicillin G
- Lymphogranuloma venereum - Azithromycin or Doxycycline
- Legionella - Azithromycin or levofloxacin
- Plague - StrePtomYcin
- Listeria - Ampicillin + Gentamicin
- MAC - Azithromycin / clarithromycin
- Group B - streptococcus - Ampicillin
- UTI - Cotrimoxazole
- Endocarditis - Amoxicillin / Clindamycin
- Babesiosis - Quinine + Clindamycin
- P vivax - Chloroquine
- Chloroquine resistant P vivax - Artemisinin combination therapy (ACT)

63. DOC for mycoplasma is/are ?

a) Doxycycline

b) Ceftriaxone

c) Azithromycin

d) Penicillin

e) Gentamycin

Correct Answer - A:C
Ans. A, Doxycycline & C, Azithromycin
Ref: Harrison rgh/e p. 1164
For M. pneumoniae infections:

- Azithromycin, clarithromycin, erythromycin, doxycycline, levofloxacin, moxifloxacin, gemifloxacin (not ciprofloxacin or floxacin).

For M. Hominis -

- Doxycycline, clindamycin

64. Which of the following dyad of anti-HIV drug and mechanism of action is/are correctly matched?

a) Maraviroc - Entry inhibitor

b) Reltegravir - Intergase inhibitor

c) Indinavir - Protease inhibitor

d) Nevirapine - Nonnucleoside reverse transcriptase inhibitor

e) Darunavir - Fusion inhibitor

Correct Answer - B:C:D

Ans. B,Reltegravir - Intergase inhibitor C, Indinavir - Protease inhibitor & D,Nevirapine - Nonnucleoside reverse transcriptase inhibitor

Antiretroviral drugs

a) Nucleoside reverse transcriptase inhibitors (NRTIs) -

- Zidovudine, Didanosine, Zalcitabine, Stavudine, Iamivudine, Abacadr, Emtricitabine

b) Nucleotide reverse transcriptase inhibitor + Tenofovir

c) Non Nucleoside reverse transcriptase inhibitors (NNRTIS) -

- Nevirapine, Efavirenz, Delavirdine, Etravirine, rilpivirine.

d) Protease inhibitors -

- Ritonavir Indinavir, NeIf navb, Saquinavir, amprenavir, Lopinavir, Fosamprenavir, Atazanavir, Darunavir, Tipranavir.

e) Fusion inhibitor - Enfuvirtide, Maraviroc.

f) Integrase inhibitors - Raltegravir, Elvitegravir.

g) CCR5 receptor inhibitor - Maraviroc

65. Anti-influenza drug which is/are given through inhalation route ?

a) Amantadine

b) Oseltamivir

c) Zanamivir

d) Rimantadine

e) None

Correct Answer - C

Ans. C. Zanamivir

[Ref: KDT 7'/e p. S0l 0.3; Park's 24't'/e 1t.169; Katzung 13th/e p. 862 63]

Anti-influenza drugs

- Amantadine, rimantadine, oseltamivir and zanamivir.
- Only zanamivir is given by parenteral route (intranasd or intravenous). all others are given orally.
- Zanamivir has lowest oral bioavailability lowest t1/2 (shortest acting).
- Rimantadine has maximum plasma protein binding, while oseltamivir has minimum plasma protein binding.
- Rimantadine has maximum metabolism.

66. True statement(s) about albendazole?

a) Undergoes first-pass metabolism in the liver

b) Active against both larva and adult of Nematodes

c) Absorption increases with fatty meal

d) Excreted in the urine

e) Thiabendazole is less toxic than albendazole

Correct Answer - A:B:C:D

Ans. A,Undergoes first-pass metabolism in the liver B,Active against both larva and adult of Nematodes C,Absorption increases with fatty meal & D,Excreted in the urine

[Ref: Katzung 13't'/e p.90E 09; Goodman and Gilmatr's ll't'/e p. 1079; Satoskar Phanna 24't'/e p. 818]

Albendazole:

- Broad-spectrum oral anthelmintic.
- Acts by binding to tubulin and thereby inhibiting its polymerization
- After oral administration, it is erratically absorbed (increased with a fatty meal) and then rapidly undergoes first-pass metabolism in the liver to the active metabolite albendazole sulfoxide.
- excreted in the urine.
- Has amiciilal effects in hydatid disease, cysticercosis, ascariasis, and hookworm infection and ovicidal effects in ascariasis, ancylostomiasis, and trichuriasis.

67. Which of the following is/are not 5th generation cephalosporin ?

a) Cefoxitin

b) Cefoperazone

c) Ceftolozane

d) Ceftaroline

e) Ceftabiprole

Correct Answer - A:B

Ans. A,Cefoxitin & B,Cefoperazone

[Ref: KDT 7/e p. 26; Ketung p- 779; Goodman & Gilman's p. 781; Pharma 241/e p. 693]

	First	Second	Third	Fourth	Fifth
Parenteral	Cephalothin Cefazoline Cephapirin	Cefuroxime Cefoxitin Cefotetan Cefmetazole Cefamendole Cefonicid, ceforanide	Cefotaxime Cetizoxime Ceftriaxone Ceftazidime Cefoperazone	Cefepime Cefpirome	Ceftob Ceftar Ceftol
Oral	Cephalexin Cephradine Cefadroxil Cephaloridine	Cefaclor Cefuroxime axetil Cefprozil	Cefixime Cefpodoxime proxetil Cefdinir Ceftibuten, Ceftamet		

68. Which of the following is true about aminoglycoside associated acute kidney injury?

a) Seen in around 10-20% of patients treated with the drug

b) May occur within 1 week of initiation of treatment

c) Occur only after 3 weeks of treatment

d) Interstitial nephritis occur

e) Usually develops within 72 hours of initiation of treatment

Correct Answer - A:B

Ans. A, Seen in around 10-20% of patients treated with the drug & B,May occur within 1 week of initiation of treatment

[Re/: KDf 7e/d p. 715; Katzung e p. 802]

- Non-oliguric acute kidney injury (AKI) occurs in 10-30% of patients on aminoglycoside therapy.
- AKT typically manifests after 5-7 days of therapy.

Nephrotoxicity:

- Neomycin is most nephrotoxic, while streptomycin is least nephrotoxic.
- Nephrotoxicity is increased by advanced age, liver disease, hypokalemia, septic shock, concurrent use of nephrotoxic drugs (amphotericin B, cisplatin, cyclosporine) and prolonged therapy.

69. Which of the following is true about antifungal drugs?

a) Echinocandins have very less side effects

b) Flucanazole is first line drug for invasive aspergillosis

c) Oral fluconazole has 100% bioavailability

d) Amphotericin B is fungistatic

e) Nephrotoxicity is dose limiting side effect of amphotericin B

Correct Answer - A:E

Ans. A, Echinocandins have very less side effects &
E, Nephrotoxicity is dose limiting side effect of amphotericin B
[Ref KDT zh/e p. 787-95]

- Echinocandins are well tolerated with mild GI side effects.
- Fluconazole is not 1st line drug for aspergillosis.
- Oral bioavailability of fluconazole is 94%.
- Amphotericin-B is fungicidal as well as fungistatic
- The most important dose limiting toxicity is nephronicity.
- Adverse effects include infusion related acute reactions (most common), nephrotoxicity, anemia, cNS toricity And, hypomagnesemia Infusion related acute reaction can be prevented by premedications like corticosteroids and antihistamines.
- It is manifested by azotemia, reduced GFR, RTA, hypokalemia, and hypomagnesemia.

70. Drugs affecting purine synthesis ?

a) Azathioprine

b) Methotrexate

c) Fludarabine

d) 6-Mercaptopurine

e) Capecitabine

Correct Answer - A:B:C:D

Ans, A,Azathioprine B, MethotrexateC,Fludarabine & D,6-Mercaptopurine

[Ref: KDT 7h/e p. 858; Katzung p. 928, 931; Goodman & Gilmin's I tth/e p. 1336, 1346-48; Satoskar Pharma 24a'/e p. G29.]

Antimetabolites:

- Drugs affect intermediary metabolism of proliferating cells.
- All these drugs interfere with nucleic acid synthesis → Act on.S,phase.

Purine antagonists = Mercaptopurine, Thioguanine, Azathioprine, Fludarabine And Cladribine.

- Pyrimidine antagonists = S-Fluorouracil, cytosine arabinoside (cytarabine), capecitabine, Gemcitabine.
- Folate antagonist = Methotrexate, pemetrexed.
- **Note:** Tetrahydrofolate is required for purine synthesis and its formation is inhibited by methotrexate.
- Methotrexate and pemetrexed dihydrofolate reductase (DHFRcse) inhibitors.

71. Methotrexate affects ?

a) Purine synthesis

b) Pyrimidine synthesis

c) Conversion of DHFA to THFA

d) Polymerization of mitotic tubule

e) None

Correct Answer - A:C

Ans. A, Purine synthesis & C, Conversion of DHFA to THFA

- Methotrexate and pemetrexed dihydrofolate reductase (DIlFRcse) inhibitors.
- These drugs also inhiUit ttrymiapate synthase and de novo purine synthesis, which contribute to methotrexate toxicity.

72. Long acting Insulin is/are?

a) Lispro

b) Detemir

c) Glargine

d) Isophane

e) Glulisine

Correct Answer - B:C

Ans. B, Detemir & C, Glargine

[Ref: KDT e p- 263: satashkar khanna 24e/ep '893]

- Rapid Acting Insulin = Insulin lispro, Insulin aspart, Insulin glulisine.
- Short acting = Regular (soluble) insulin, semilente insulin'
- Intermediate acting = Insulin zinc suspension (Lente), Neutral protamine hagedorn (isophane insulin)
- Long acting = Protamine zinc insulin, Insulin glargine, Insulin detemir

73. Among ACE inhibitors, which of the following is/are prodrug(s)-

a) Perindopril

b) Captopril

c) Lisinopril

d) Ramipril

e) Enalapril

Correct Answer - A:D:E
Ans. A,Perindopril D, Ramipril & E, Enalapril
[Ref KDT F/e p' 23, 501]

- All ACE inhibitors are prodrugs except captopril and Lisinopril.

74. Which of the following anti-tumor drug have high risk of gonadotoxicity?

a) Dactinomycin

b) Cyclophosphamide

c) Busulfan

d) Vinblastine

e) Ifosfamide

Correct Answer - B:C:E
Ans. B,Cyclophosphamide C,Busulfan & E,Ifosfamide
[ReF K.D-t.P. 859;]

- All alkylating agents are highly gonadotoxic.
- High Alkylating agents = Cyclophosphamide, ifosfamide, busulfan, chlorambucil, melphalan, procarbazine.
- Medium = Carboplatin, doxorubicin
- Low = Vinca alkaloids (vincristine, vinblastine), methotrexate, mercaptopurine, bleomycin, dactinomycin.

75. Adrenaline can be used in ?

a) Bronchial asthma

b) Allergic disorder

c) Cardio-pulmonary resuscitation

d) Anaphylaxis

e) As anti-analgesic medicine

Correct Answer - B:C:D

Ans. B,Allergic disorder C,Cardio-pulmonary resuscitation & D,Anaphylaxis

- Adrenaline is the drug of choice for anaphylaxis (anaphylactic shock) -> an allergic hypersensitivity reaction (Type-I hypersensitivity).
- 1st line drug used in cardiopulmonary resuscitation.

76. Drug(s) causing QT interval prolongation?

a) Amiodarone

b) Cisapride

c) Calcium gluconate

d) Magnesium therapy

e) Ketoconazole

Correct Answer - A:B

Ans. (A)Amiodarone & (B)Cisapride

[Ref: KDT Vh/e p. 528; Davison 27d/e p. 571]

Drugs that prolong Q-T interval (have potential to precipitate Torsades de pointes)

- Antiarrhythmics = Quinidine, procainamide, disopyramide, propafenone, amiodarone
- Antimicrobials = Quinine, mefloquine, artemisinin, halofantrine, sparfloxacin, gatifloxacin
- Antihistamines = Terfenadine, astemizole, ebastine
- Antidepressants = Amitriptyline and other tricyclics
- Antipsychotics = Thioridazine, risperidone
- Prokinetic = Cisapride

77. Which of the following drugs is excreted mainly by kidney?

a) Tetracycline

b) Rifampicin

c) Digoxin

d) Penicillin

e) Lithium

Correct Answer - A:C:D:E

Ans. (A)Tetracycline (C)Digoxin (D)Penicillin & (E)Lithium

[Ref: KDT p. 695; Katzung 13'h/e p, 790]

- Lithium = > 95% renal excret
- Penicillin = Excreted by the kidney, 10% by glomerular filtration and 90% by tubular secretion.
- Digoxin = Primarily excreted by kidney
- Tetracyclines = Primarily excreted in urine, except for doxycycline.
- Rifampicin = Excreted mainly in bile, some in urine ; Urine and secretions may become orange-red.

78. Which of the following is true statement(s) about codeine ?

a) Used as anti-tussive agent

b) Analgesic potency is equivalent to morphine

c) Causes respiratory depression

d) Partly metabolized to morphine

e) Completely metabolized to morphine

Correct Answer - A:C:D

Ans. (A)Used as anti-tussive agent (C)Causes respiratory depression & (D)Partly metabolized to morphine

[Ref: KDT 7/e p. 474; Katzung ljh/e p. 545-49]

Codeine:

- Codeine is a pure opioid agonist which is less potent than morphine (1/l0s analgesic action).
- It has partial agonistic activity on opioid receptors with a low ceiling effects.
- Partly converted to morphine in the body.
- It is used as antitussive (drugs for cough) and antidiarrheal drugs
- Ceusa same degree of respiratory depression as morphine.

79. Which of the following is/are feature of drowning?

a) Oedema aquosum in lung

b) Emphysema aquosum is presumptive evidence of death from drowning

c) altauf s haemorrhages is seen subpleural

d) Gettler's test is used to test chloride content of blood from both sides of the heart

e) Lung is ballooned and light in sea water drowning

Correct Answer - A:B:C:D

Ans. is 'a' i.e., Oedema aquosum in lung; 'b' i.e., Emphysema aquosum is presumptive evidence of death from drowning; 'c' i.e., Paltauf s haemorrhages is seen subpleurally; & 'd' i.e., Gettler's test is used to test chloride content of blood from both sides of the heart ***[Rep Reddy 33^{d}/e p. 369-70; Parikh 7"/e p. 192-93]***

- The eyes are half opened with dilated pupil, congested conjunctiva and almost nil petechial hamorrhage.
- Cutis anserina (goose skin), i.e. granular appearance of skin with erect hair due to contraction of erector pili.
- Washer woman hand and feed, i.e. bleached and corrugated appearance of palm and soles.
- **White, fine, lathery, abundant and tenacious (sticky) froth of nose and mouth.** Froth increases in amount on compression of the chest. Froth in the nose and mouth is also seen in certain poisoning, e.g. cocaine, organophosphorus, morphine (opioids) and

barbiturates. But the froth is neither so fine nor so copicus and persistent in these poisonings.

- Weeds, grass, plants, mud or stones in tightly clenched hand. It is due to cadaveric spasm and **strongly suggest that the person was alive when drowned,** as it indicates the struggle of person for life. Abraded tips of fingers and toes, and sand under damaged nails have same significance.
- Emphysema aquosum is seen in wet drowning. In this condition, the lungs are characterized by rupture of aleveolar spaces with accumulation of hemolyzed blood with water and small amount of air. This condition results from violent respiratory efforts when the victim is submerged in conscious state.
- Oedema aquosum is a condition of lung characterized by oedematous change due accumulation of some water in lung. This condition results due to passive entrance of water in the lungs when the victim is submerged in unconscious state having no violent effort for respiration. It is seen in submersion of unconscious

80. Test used for blood stains detection is/are all except

a) Barberio's test

b) Kastle-meyer test

c) Benzidine test

d) Acid phosphatase test

e) Takayama test

Correct Answer - A:D

Ans. is 'a' i.e., Barberio's test; & 'd' i.e., Acid phosphatase test *[Ref Reddy 33' p. 450-51, 435-36; Parikh 7th/e p. 492-93, 484-86]*

these tests are based on H_20_2 and peroxidase enzyme. Tests are :

- Benzidine test : Greenish blue colour.
- Phenolphthalein test (kastle meyer test) : Deep permanganate colour.
- Leucomalachite green test : Bluish green or peacock blue colour.
- Guaiacum test : Blue colour.
- Orthotoludine test (kohn test) : Blue or green colour.
- Amidopyrine test : Purple colour.
- Teichmann's haemin crystal test.
- Takayama hemochromogen crystal test

81. Doctors role in noting dying declaration is to ?

a) Ascertain compos mentis

b) Call the magistrate

c) Elicit information by leading questions

d) Ask the investiating medial officer to be there

e) None

Correct Answer - A

Ans. is 'a' i.e., Ascertain compos mentis

Dying declaration

- It is the written or verbal statement made by a person likely to die because of some unnatural act done on his body, narating the circumstances or the conditions responsible for his present state of health or the cause and manner of likely unnatural death.
- Ideally dying declaration should be recorded by executive or honorary magistrate, but can also be recorded by doctor, village head man, police or any other person, if there is no time to call a magistrate. Doctor has to certify the patient to be compos mentis (sound mind). It is recorded in presence of two disinterested witnesses. Relatives and police officers are not allowed to be present. No oath is administered.
- It carries less weight than dying deposition as no cross-examination is possible. If the patient does not die after the recording of declaration, the dying declaration loses its importance sice now he can be called to the court and his evidence can be recorded after cross-examination.

82. Which of the following is/are dangerous injury in forensic science ?

a) Injury causing endanger to life if not treated timely

b) Hearing loss

c) Loss of 2-3 teeth

d) Synonymous with grievous injury

e) Emasculation

Correct Answer - A

Ans. is 'a' i.e., Injury causing endanger to life if not treated timely *[Ref Reddy 33rd/e p. 293; Parikh 7m/e p. 263]*

- Injuries can be divided into *(i) Simple (ii) Grievous and (iii) dangerous.*
- A simple injury is one which is neither extensive nor serious, and which would heal rapidly without leaving any permanent deformity or disfiguration.
- A grievous injury is one (i) Which is extensive or serious (ii) Which does not heal rapidly, and (iii) Which leaves a permanent deformity or disfiguration.

.. Emasculation (cutting of the penis, castration; or causing loss of power of erection due to spinal injury).
2. Permanent privation of the sight of either eye.
3. Permanent privation of the hearing of either ear .
4. Privation of any member (part, organ, limb) or joint.
5. Destruction or permanent impairing of powers of any member or joint.
6. Permanent disfiguration of head or face.

7. Fracture or dislocation of a bone or a tooth.
8. Any hurt which endangers life or which causes the sufferer to be, during the space of twenty days in severe bodily pain, or unable to follow his daily routine.
9. Section 319 IPC defines hurt as bodily pain, disease, or infirmity, caused to any person.

83. Which of the following features(s) is/are more common in strangulation rather than hanging -

a) Pale face

b) Fractures of trachea and larynx

c) Congested faces

d) Transverse ligature

e) Bruises at edges of the ligature mark

Correct Answer - B:C:D:E

Ans. is 'b' i.e., Fractures of trachea and larynx; 'c' i.e., Congested faces; 'd' i.e., Transverse ligature; & `e' i.e., Bruises at edges of the ligature mark ***[Ref Reddy 33rd ie p. 351]***

	Hanging	**Strangulation**
1.	There is suspension of body.	No suspension
2.	Compression on neck is by a ligature	Compression on neck is by a ligature, hands, sticks, elbow,knee or foot.
3.	Force of compression is the weight of body (endogenous orce)	It is outside force applied (exogenous force).
4.	Ligature mark is above the thyroid is oblique, symmetrical and incomplete.	Mark is on or below the thyroid. Is horizontal, complete and continuous (in absence of ligature mark there are other injuries on neck depending upon type of
5.	Knot usually present.	
6.	Usually no mark at site of knot : In fixed knot, mark is inverted 'V' shaped.	

7. Mark usually single. 8. Surface of mark abraded or contused. 9. Surface may show pattern of ligature used. 10. Surface hard. Mark-yellowish brown in colour	strangulation). 5. Knot Usually absent. 6. Mark is horizontal, complete and continuous. 7. Usually multiple marks. 8. Usually lacerated. 9. Pattern not seen 10. Soft, due to frank bleeding. Black.

84. Saturated NaCl is a not used in preservation of viscera in which of the following poisoning?

a) Sodium hydroxide

b) Aconite

c) Carbolic acid

d) Sulphuric acid

e) None

Correct Answer - A:B:D

Ans. is 'a' i.e., Sodium hydroxide; `b' i.e., Aconite; & 'd' i.e., Sulphuric acid *[Ref Reddy 33" Ye p. 124; Parikh 7TVe p. 108-09]*

.. Saturated sodium chloride: In all cases of poisoning excluding corrosive acids except carbolic acids (phenol), alkalis, corrosive sublimate and aconite.

2. 30 mg potassium oxalate (anticoagulant) and 10 ml sodium fluoride (enzyme inhibitor) : Blood in suspected poisoning including alcohol but excluding oxalic acid, ethylene glycol, fluoride, carbon monoxide.

3. Rectified spirit : All except in cases of poisoning by : (i) phenol, phosphorus, paraldehyde, (ii) kerosene, (iii) formaldehyde, formic acid, (iv) alcohol, acetic acid (v) chloroform, chloral hydrate, (vi) ether.

4. 10 mg/ml Na/K. fluride and 3 mg K-oxalate : For preserving blood; fluride is also added to CSF, vitreous humor; and urine if alcohol estimation is required; and also in analysis of cocaine, cyanide and carbon monoxide.

85. Which of the following dyad of disease and incubation period is/are correctly matched ?

a) Measles : 4-5 day

b) Chicken pox : 3-20 day

c) Bubonic plague: 2-5 day

d) Leptospirosis: 4-20 days

e) Heptatis A : 45-180 day

Correct Answer - C:D

Ans. is 'c' i.e., Bubonic plague:2-5 days; & d. Leptospirosis; 4-20 days *[Ref Park's 24th Ie p.157; Ananthanarayan 9th/e p. 322,* 512*, 381; Harrison's 19ffi/e p,1 l*831

- Bubonic plague → caused by Yarsinia pestis → 2-7 days
- Leptospirosis → caused by H1N1 Type A influenza→ 1-4 days 1-3

86. True about Human papilloma virus?

a) Belongs to family papovaviridae

b) DNA virus

c) RNA virus

d) Enveloped

e) Causes anal warts

Correct Answer - A:B:E

Ans. is 'a' i.e., Belongs to family papovaviridae; 'b' Le., DNA virus & `e' i.e., Causes anal warts [Ref: Ananthanarayan 9th/e p.553; Harrison's 19thle p. 1197-99; Robbins (SEA) 9Thle p. 326].

- HPV is a non enveloped DNA virus (ds DWA), belongs to Papovaviridae.
- HPV causes anogenital warts (condyloma accuminata).

87. All are true about Ebola virus infection except?

a) Air dropler is most common mode of transmission

b) Haemorrhagic manifestation may occur

c) Thai forest type - most common species in epidemics

d) presents as sudden onset of fever and sore throat

e) 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.**

88. Antigen presenting cell(s) is/are?

a) Skin langerhans cell

b) T-lymphocytes

c) Macrophages

d) Kuffer cell

e) Thymic epithelial cells

Correct Answer - A:C:E

Ans. is 'a' i.e., Skin langerhans cell; 'c' i.e., Macrophages; ie., Kuffer cell; & `e' i.e., Thymic epithelial cells ***[Ref Ananthanarayan 9th/e p. 137-38; Greenwood 16th/e*** **p.** ***133-34]***

- Important antigen presenting cells are *macrophages, B-cells, dendritic cells* and *Langherhans cells. Dendritic cells are the most potent and effective antigen presenting cells.*
- CD_4helpar T cells are activated only when antigen is presented by MHC-class II of APC —> MHC - H restricted.
- CD_8 cytotoxic T-cells recognize antigen that is presented by MHC - class I —> MHC - I restricted.
- B-cells receptors (i.e. surface immunoglobulin) can be bind to antigen and activate B-cells without involvement of MHC and antigen presenting cells Antigen *processing and presentation by APCs is not required for B cells* (in contrast to T-cells).

89. Deficiency of both T and B lymphocyte involved in all except?

a) Chronic mucocutaneous candidiasis

b) Wiskott-Aldrich syndrome

c) DiGeorge syndrome

d) Ataxia Telangiectasia

e) Common variable immunodeficiency

Correct Answer - A:C:E

Ans. is 'a' i.e., Chronic mucocutaneous candidiasis; 'c' i.e., DiGeorge syndrome; & `e' i.e., Common variable immunodeficiency ***[Ref Ananthanarayan 9th/e p.174-75; Robbin's 7h/e p. 239-401***

90. Dimorphic fungi is/are?

a) Histoplasma capsulatum

b) Sporothrix schenckii

c) Malassezia furfur

d) Cryptococcus neoformans

e) Aspergillus

Correct Answer - A:B

Ans. is 'a' i.e., Histoplasma capsulatum; & 'b' i.e., Sporothrix schenckii [Ref Ananthanarayan ele p. 601,609; Jawetz 23'/e p. 6451.

- Fungi that have two growth forms, such as mold (filaments) and a yeast, which develop under different growth conditions.
- In host tissues or cultures at 37°C they occur as yeasts, while in the soil and in cultures at 22°C they appear as moulds.
- *Yeasts* are seen as rounded single cells or as budding organisms. *Candida* and *Cryptococcus* are traditionally classified as yeasts.
- Most fungi causing systemic infections are dimorphic fungi

Dimorphic Fungi are *Jawetz 27th/853*

- Blastomycosis dermatitidis
- Paracoccidioides brasiliensis
- Coccidioides posadasii & Coccidioides immitis
- Histoplasma capsulatum
- Sporotrix schenckii
- Penicillium marneffe
-

91. Non ture about Donovanosis?

a) Caused by Klebsiella granulomatis

b) Associated with pseudobuboes

c) Caused by Leishmania donovani

d) Drug of choice is Miltefosine

e) Drug of choice is sodium stibogluconate

Correct Answer - C:D:E

Ans. is 'c' i.e., Caused by Leishmania donovani; 'd' i.e., Drug of choice is Miltefosine; & `e' i.e., Drug of choice is sodium stibogluconate [Ref Ananthanarayan 9th/e p.397; Harrison's 19th/e p. 298e 1-2; Greenwood tele p.310; Park's 24th/e p.350]

- Donovanosis is caused by Calymmatobacterium granulomatis, a gram negative intracellular bacteria. Incubation period of donovanosis is 1 to 4 weeks. It begins as one or more subcutaneous nodules that erode through skin to produce an ulcer.
- Azithromycin is the DOC Alternatives are doxycycline (2" choice) and chloramphenicol. Streptomycin, once used, is not in use now. Note :Calymmatobacterium granulomatis is now called as Klebsiella granulomatis.

92. True about Actinomycosis?

a) Caused by madurella mycetomatis

b) Caused by anaerobic or microaerophilic bacteria

c) Cervicofacial is the most common site affected

d) Sulphur granules are present in lesion

e) Belongs to growth factor category of oncogene

Correct Answer - B:C:D:E

Ans. is 'b' i.e., Caused by anaerobic or microaerophilic bacteria ; 'c' i.e., Cervicofacial is the most common site affected; `d' i.e., Sulphur granules are present in lesion; & `e' i.e., Belongs to growth factor category of oncogene ***[Ref Ananthanarayan 9"'/e p.391-93, 600-01; Greenwood 16"/e p.221-22; Harrison's 19th/e p.1088]***

- These are considered as a transitional form between bacteria and fungi.
- Actinomyces are `gram-positive'non-motile"non-capsulated"non-acid fast' and 'non-sporing' filaments that break up into bacillary and coccoid elements.
- They are anaerobic or microaerophilic (Ananthnarayan 9th/e p. 391-393)
- Two important species are A. israelli and A. bovis. Most cases are due to A israelli.
- Actinomyces are members of normal oral flora and are often cultured from bronchi, G.I. tract, and the female genital tract.
- Actinomycosis in human beings is an endogenous infection.
- The critical step in the development of actinomycosis is disruption of

mucosal barrier.

93. True regarding leptospirosis is?

a) Rats are the only reservoirs

b) Fluoroquinolones are the DOC

c) Person to person transmission rare

d) Hepatorenal syndrome occurs in 50% cases

e) None

Correct Answer - C

Ans. (c) i.e. Person to person transmission rare

Note: - Weil syndrome develops in 5-10% of infected individual

- Treatment of choice for leptospirosis is Ampicillin
- Doxycycline is the drug of choice for chemoprophylaxis.

94. Which is true about syphilis:

a) VDRL test detects antibodies

b) Jarisch herxheimer reaction-IgE mediated

c) Penicillin is preferred treatment for primary and secondary stage

d) RPR can be done for CSF

e) None

Correct Answer - A:C

Ans (a and c) VDRL test detects antibodies, Penicillin is preferred treatment for primary and secondary stage

Jarisch: Herxheimer reaction is mediated by release of lipoproteins, cytokines and immune complex.

Evaluation for neurosyphilis:

- Pleocytosis, increased protein concentration
- CSF VDRL is highly specific and when reactive is considered diagnostic of neurosyphilis
- Patient with RPR titre 1:32 are at higher risk for developing neurosyphilis.

95. Water loss of 5fi)-l0ffiml/hour in cholera is know as-

a) Cholera gravis

b) Cholera mitis

c) Cholera majoris

d) Cholera intermedius

e) Cholera totalis

Correct Answer - A

Anwer-Ans. is 'a' i.e., Cholera gravis *[Ref Harrison's 19^{m}/e* p, *1063; www.ncbi.nlm.nih.gov]*

- Vibrio cholera infection manifestations range from asymptomatic to mild diarrhea to severe diarrhea.
- Massive watery diarrhea (known as cholera gravis) may cause loss of **1000** ml water per hour. This can cause hypotensive shock & death.

96. Organism(s) commonly causing infection in cystic fibrosis patients

a) Burkholderiacepacia

b) Pseudomonas Aeruginosa

c) Staphylococcus Aureus

d) Burkholderia Mallei

e) Streptococcus Pyogenes

Correct Answer - A:B:C

Ans. is 'a' i.e., Burkholderia cepacia; 'b' i.e., Pseudomonas aeruginosa; & 'c' i.e., Staphylococcus aureus ***[Ref Harrison 19^{m}/e p. 1699]***

Infections seen in cystic fibrosis are caused by -

- Burkholderia cepacia
- Pseudomonas aeruginosa (mucoid type)
- Atypical mycobacteria
- Non-typeable hemophilus influenzae
- Staphylococcus aureus (including MRSA

97. Wbich of the following is/are Tick-borne.disease-

a) Murine typhus

b) Epidemic thyphus

c) Lyme's disease

d) Tularemia

e) Trench fever

Correct Answer - C:D

Ans. is 'c' i.e., Lyme's disease; & 'd' i.e., Tularemia *[Ref Park's 24^{m}/e p.817, 805; Ananthanarayan le p.407; Greenwood 16^{m} le p. 350]*

- Hard tick→ Tick typhus, viral encephalitis, viral hemorrhagic fever, KFD, Tularemia, tick paralysis, human habesiosis, Lyme's disease.
- Soft tick→ Q fever, relapsing fever, KFD.

98. Barrel shaped eggs is/are seen in -

a) Hookworm

b) Pin worm

c) Roundworm

d) Whipworn

e) Strongyloides stercoralis

Correct Answer - D

Ans. is 'd' i.e., Whipworm ***[Ref Rajesh karykarte 1"/e p. 1661***

- Eggs of Trichuris-trichura (whipworm) are barrel-shaped with mucous plug at each pole. Shell is yellow to brow (bile-stained) and plugs are colourless. They float in saturated solution of common salt. When freshly passed, they contain unsegmented ova and are not infective to man.

99. Which of the following is true about malaria -

a) Chloroquine resistance occurs in India

b) Relapses is usual for vivax and ovale malaria

c) Sexual cycle occurs in mosquito

d) Not a public problem in India

e) None

Correct Answer - A:B:C

Ans. is 'a' i.e.,Chloroquine resistance occurs in India; 'b' i.e., Relapses is usual for vivax and ovale malaria; & 'c' i.e., Sexual cycle occurs in mosquito *[Ref KDT 7Ve* p. *822; Park 24th Ie p. 272-75]*

- Malaria contiues to pose a major public health problem in India, especially due to P. falciparum.
- Chloroquine - resistant P. falciparum malaria in India is widespread.

100. True about human development index (HDI)-

a) Adult literacy rate range from 0 to 100

b) HDI score range is 0-10

c) Life expectancy at birth range from 25 years to 85years

d) GDP per capita range from 25$ to 50000$

e) HDI score range is 0-l

Correct Answer - A:C:E

Ans. is 'a' i.e., Adult literacy rate range from 0 to 100; 'c' ie., Life expectancy at birth range from 25 years to 85 years & `e' i.e., HDI score range is 0-1 ***[Ref Park's 24th Ie*** **p.** ***17-18;***

According to HDI countries are divided ***?***

1. Developed countries (High HDI 0.8) - USA, Canada, Norway
2. Developing countries (medium HDI 0·5 - 0.79) - India
3. Underdeveloped countries (Low HDI 0.5) Seiera, Ethopia

101. Vaccine contraindicated in AIDS patient-

a) MMRvaccine

b) Hepatitis A vaccine

c) Varicella vaccine

d) Hib vaccine

e) DPT vaccine

Correct Answer - A:B:C

Ans. is 'a' i.e., MMR vaccine; 'b' i.e., Hepatitis A vaccine; & 'c' i.e., Varicella vaccine

[Ref Park's 24th le p.108; Community Medicine by Piyush Gupta 1"/e p.428; Community Medicine with Recent Advances by Suryakantha 4th /e p. 287; O.P. Ghai 8th le* p. *189-90]

- Live attenuated vaccines are contraindicated in immunodeficiency states like HIV.
- Important examples of live vaccines are BCG, OPV (Sabin oral polio vaccine), measles, mumps, rubella, yellow fever (17D vaccine), typhoid oral (typhoral), chicken pox, influenza, plague, epidemic typhus and hepatitis A.

102. True statement about IPV vaccine -

a) Given through IM/SC route

b) Given through intradermal route

c) Does not require stringent conditions

d) Dose is - 0.1 ml/dose

e) Dose is -0.5 ml/dose

Correct Answer - A:C:E

Ans. is 'a' i.e., Given through IM/SC route; 'c' i.e., Dose not require stringent conditions;& `e' i.e., Dose is -0·5 ml/dose [Ref Park's 24th /e p. 221-22; O.P. Ghai 8th/e p. 192]

- IPV is administered by intramuscular (preferred) or subcutaneous routes.
- The primary or initial course of immunization consists of 4 inoculation (4 doses). The first 3 doses are given at intervals of 1-2 months and 4th dose 6-12 months after the third dose. First dose usually given when the infant is 6 weeks old. Additional doses are recommended prior to school entry and then every 5 years until the age of 18.
- It can be combined with DPT, Hepatitis, and/or H. influenzae type B vaccine. In the combination vaccines, the alum or the pertussis vaccine, or both have an adjuvant effect.
- The major advantage of IPV is that being an inactivated vaccine, it can be given in pregnancy and immunocompromised persons (person with lymphoreticular malignancies, on radiotherapy or corticosteroid, > 50 years of age).
- The other important advantage is that there is no risk of vaccine

associated paralytic polio (VAPP) as virus is inactive. Vaccine does not require stringent conditions during storage and transportation, thus having long shelf life. One or two doses of live vaccine (OPV) can be given safely as booster after an initial course of immunization with IPV .

103. True about demographic cycle oflndia -

a) Entered into low stationary phase

b) Dependency ratio <40Vo

c) Year of Big divide-l92lA.D

d) Population pyramid has a broad base and a tapering top

e) First regular census in India was carried in 1881

Correct Answer - C:D:E

Ans. is 'c' i.e., Year of Big divide-1921 A.D; 'd' i.e., Population pyramid has a broad base and a tapering top; & `e' i.e., First regular census in India was carried in 1881

[Ref Park's 24th/e p.513-518; Community Medicine by Piyush Gupta Ple p.610-12; Community Medicine with Recent Advance by Suryakantha 4th/e p. 651-57]

- The proportion of persons above 65 years of age and children below 15 years of age are considered to be dependent on the economically productive age group (15-64 years). The ratio of combined age group 0-14 years plus 65 years and above to the 15-65 years age group is known as total dependency ratio.
- In countries with high birth rates (e.g. developing countries like India), population pyramid has a broad base and a tapering tap/apex (conical shape).
- In developed countries, the pyramid generally show a bulge in the middle and narrower base (dumb-bell shaped). Census in India
- Census is very important source of health information in India. It is carried at regular interval of 10 years. The first census in India was

taken in 1881. Last census was held in March 2011.

- Census is under Ministry of Home Affairs and head of census organization is 'Registrar General and Census Commissioner'.
- In recent census (2011) Biometry was included first time ever : Finger prints, Iris scan, UID (unique identification number) and photograph.
- The referral time and date at which snapshot of population is taken is called census stop (census movement), which is 00.0 hrs 01 March, i.e. Census stops .

104. Which of the following is/are true about sand fly-

a) Breedon overhead tanks

b) Smaller than mosquito

c) Female fly does not bites

d) Don't fly by choice

e) None

Correct Answer - B:D

Ans. is 'b' i.e., Smaller than mosquito; & 'd' i.e., Don't fly by choice [Ref Park 24th/e p. 812-13]

- Size : Sandflies are smaller than mosquitoes.
- Wings : The wings of the sand fly are up-right and lanceo late in shape; the second longitudinal vein branches twice, the first branching taking place in the middle of the wing.
- Legs : The legs of the sand fly are longer compared with the size of the body.
- Hairs : Sand fly is a hairy insect
- Hopping : Sandflies hop about and do not fly by choice
- Only female sandflies bite. They require a blood meal every 3-4 days for oviposition. They inhabitat holes and crevices in walls, holes in trees, dark rooms, stables and store rooms.
- Sandfly connot fly, it only hops.
- The insecticide of choice is DDT as sandflies have not developed resistance. DDT is sprayed upto a height of 4-6 feet of walls.

105. Period of cornmunicability of measles is-

a) 3 days before and 10 days after appearance of rashes

b) 3 weeks after appearance of rashes

c) I week before appearance of rashes

d) 4 days before and 5 days after appearance of rashes

e) Upto 3 months after appearance of rashes

Correct Answer - D

Ans. is 'd' i.e., 4 days before and 5 days after appearance of rashes t *Ref: Park 24th/e p. 157; Community Medicine with Recent by Suryakantha 4th/e p. 328]*

- Chicken pox : 1 - 2 days before to 4 - 5 days after appearance of rash.
- Measles : 4 days before to 5 days after appearance of rash.
- Rubella : 7 days before symptoms to 7 days after appearance of rash.
- Mumps : 4 - 6 days before symptoms to 7 days thereafter.
- Influenza : 1 - 2 days before to 1 - 2 days after onset of symptoms.
- Diphtheria : 14 - 28 days from disease onset.
- Pertussis : 7 days after exposure to 3 weeks after paroxysmal stage.

106. Which of the following is/are true about national iron plus initiotive -

a) Only school going adolescents are covered

b) Adolescents ofage group l0-19 yr are covered

c) Preschool children are covered through aganwadi center

d) Biannul deworming through albendazole tablet

e) Screening of target groups for moderate/severe anaemia and referring these cases to an appropriate health facility

Correct Answer - B:D:E

Ans. is 'b' i.e., Adolescents of age group 10-19 year are covered; 'd' i.e., Biannul deworming through albendaz,ole tablet; & 'e' i.e., Screening of target groups for moderate/severe anaemia and referring these cases to an appropriate health facility ***[Ref Park's 24th/e p. 471; http://nhm.gov.in/nrhmcomponnets; Community Medicine by Piyush Gupta 1"/e p. 814-15; Suryakantha 4thle p. 196-97]***

- Bi-weekly 20 mg elemental iron and 100 microgram (mcg) folic acid per ml of liquid formulation and age appropriate de-worming for preschool children of 6-59 months.
- Weekly supplementation of 45 mg elemental iron and 400 mcg folic acid per child per day for children from 1st to 5th grade in govt. & Govt. Aided schools, and at AWC for out of school children (6 to 10 years).
- Weekly dose of 100 mg elemental iron and 500 mcg folic acid with biannual de-wormin^{g} in adolescents (10-19 years) under WIFS.
- Weekly supplementation for woman in reproductive age, Pregnant

and lactating women.
- Screening of target groups for moderate/severe anemia and referring these cases to an appropriate health facility.

107. Which of the following is/are true about Revised National Tuberculosis Control Programme (RNTCP)-

a) T.B. is mandatory to notify

b) Suspicious TB patients are screened through 2 sputum smear examinations

c) MDR-TB is not included in RNTCP

d) Case finding is active

e) Covered the whole country since March 2006

Correct Answer - A:B:E

Ans. is 'a' i.e., T.B. is mandatory to notify; `b' i.e., Suspicious TB patients are screened through 2 sputum smear examinations & 'e' i.e., Covered the whole country since March 2006

[Ref Park's 24th/e p. 427-30; Community Medicine by Piyush Gupta 1"/e p. 826-30; Suryakantha 4'1* p. 921-23; National Health Programs of India by fungal Kishore 7th/e p. 91]

Government of India declare TB a notifiable disease on 7th May 2012 with following objectives :-

- To have established TB surveillance system in the country.
- To extent mechanism of TB treatment adherence and contact tracing of patients treated in the private sector.
- To ensure proper TB diagnosis and case management and further accelerate reduction of TB transmission.
- To mitigate the impending drug resistant TB epidemic in the country.

108. 9-valent HPV vaccine covers which type(s) HPV strain -

a) **6, 11**

b) **16, 18**

c) **31, 33**

d) **41, 35**

e) **42,58**

Correct Answer - A:B:C

Ans. (A) 6, 11 (B) 16, 18 (C) 31, 33

- The 9-valent HPV vaccine, which protects against HPV types 6, 11, 16, 18, 31, 33, 45, 52 and 58, is safe and effective and will further reduce the incidence of HPV infection, as well as HPV - related cancers.

There are two types of HPV vaccines :-

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

109. True about population coverage of primary health center ?

a) 20000 in plain area

b) 30000 in plain area

c) 10000 in tribal area

d) 20000 in tribal area

e) 30000 in tribal area

Correct Answer - B:D
Ans. is 'b' i.e., 30000 in plain area; & 'd' i.e., 20000 tribal area

110. Which of the following is true about post exposure prophylaxis in rabies?

a) Category I- Both vaccine and immunoglobulin are given

b) Immunoglobulin not required if prior full vaccination is received

c) Local wound cleaning is done in all cases of dog wound

d) Category I-requires vaccination only

e) Vaccine is stopped if within 3 days of bite, dog dies

Correct Answer - B:C

Ans. is 'b' i.e., Immunoglobulin not required if prior full vaccination is received; & 'c' i.e., Local wound cleaning is done in all cases of dog wound *[Ref Park's 24th/e p. 296-97; Community Medicine by Piyush Gupta 1"/e p. 3231*

- Cleansing : With plenty of soap and water, preferably under a running tap.
- Suturing: It should not be done immediately; if required should be done 24-48 hours later, with minimum possible stitches.
- Category I - touching or feeding animals, licks on intact skin→ None
- Category II - nibbling of uncovered skin, minor scratches of Immediate vaccination and local treatment of the wound abrasions without bleeding
- Category III - single or multiple transdermal bites or scratches, licks on broken skin;--> Immediate vaccination and administration of rabies
- contamination of mucous contacts with bats → immunoglobulin; local treatment of the wound membrane with saliva from licks, etc.

111. Contraindication of cochlear implantation is/are -

a) Mondini deformity

b) Intracochlear ossification

c) Chronic suppurative otitis media

d) Agenesis of cochlear nerve

e) All

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

112. 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.

113. Which of the following is/are true about leforts fracture

a) It is fracture of zygomatic bone

b) May cause CSF rhinorrhea

c) Type 1: complete separation of facial bones form the cranial bones

d) Classified as types 1 to 5

e) None

Correct Answer - B

Answer- B.May cause CSF rhinorrhea

- Le Fort I (transverse)- crosses lower part of nasal septum, maxillary antra and the pterygoid plates.
- Le Fort II (pyramidal)- passes through the root ofnose, lacrimal bone, floor oforbit, upper part of maxillary sinus and pterygoid plates
- Le Fort III (craniofacial dysjunction)- There is complete separation offacial bones from the cranial bones.

Clinical features of maxillary fracture-

- Malocclusion of teeth
- Mobility in the maxilla
- CSF rhinorrhoea.

114. True about development of cochlea

a) Cochlea start developing from 3rd week of gestation

b) Semicircular canals develop after cochlea

c) Cochlea development completes by 20 week of gestation

d) Cochlea development completes at 2 year of age

e) All

Correct Answer - A:C

Answer- A,Cochlea start developing from 3rd week of gestation C,Cochlea development completes by 20 week of gestation

- Development of cochlea starts at 3 weeks and completes at 20-22 weeks of intrauterine life.
- Semicircular canal develops earlier than cochlea.

115. Which of the following is/are true about the T-stage of maxillary sinus carcinoma -

a) Stage T4a- frontal sinus involvement

b) Stage T3 - ethmoid sinus involvement

c) Stage T2- sphenoid sinus involvement

d) Stage T2- bone of the posterior wall of maxillary sinus

e) None

Correct Answer - A:B

Answer- (A) Stage T4a- frontal sinus involvement (B) Stage T3 - ethmoid sinus involvement

- T4a- Tumour invades anterior orbital contents, skin of cheek, pterygoid plates, infratemporal fossa, cribiform plates, sphenoid or frontal sinus.
- T3- Tumour invades any of the following- bone of the posterior wall of maxillary sinus, subcutaneous tissues, floor or medial wall orbit, pterygoid fossa and ethmoid sinuses.
- T2- Tumour causing bone erosion or destruction including extension into the hard palate and middle nasal meatus, except extension to posterior wall of maxillary sinus and pterygoid plates.

116. True about foreign bodies of air passage in children except -

a) Vegetable foreign bodies are not common

b) Tracheal obstruction can causes sudden death

c) More common in right bronchus

d) More common in children of less than 4 yr of age

e) CT scan of chest is done in all cases

Correct Answer - A:B:E

Answer- (A) Vegetable foreign bodies are not common (B) Tracheal obstruction can causes sudden death (C) More common in right bronchus

- The most common age group is 6 months to 4 years.
- Most common foreign body aspirated is nuts (peanuts).
- Most airway foreign bodies lodge in a bronchus (right more than left).
- The child presents with acute onset of cough- (most-common), Chocking gagging, wheezing, respiratory distress, aphonia, drooling and stridor.
- Bronchoscopy is diagnostic as well as therapeutic.

117. Deformities occurring in leprosy patients is/are -

a) Facies leonina

b) Low set ear

c) Saddle nose

d) Lagophthalmos

e) Microganthia

Correct Answer - A:C:D

Answer- (A) Facies leonina (C) Saddle nose (D) Lagophthalmos

Face-

- Mask face, facies leonina, Saddle nose, sagging face, lagophthalmos, loss of eyebrows, perforated nose, depressed nose, ear deformities.

118. Which of the following is/are true about schwartz sign -

a) Sign of inactive disease

b) Indication for surgery

c) More common during pregnancy

d) Reddish hue over the promontory

e) Seen in the early stages of the otoscelerosis

Correct Answer - B:C:D:E

Answer- (B) Indication for surgery (C) More common during pregnancy (D) Reddish hue over the promontory (E) Seen in the early stages of the otoscelerosis

Schwartz sign (Flemingo's flush sign)-

- In 10% of cases flamingo - pink blush is seen through the tympanic membrane called as Schwartz sign
- It is seen in early and active stage of the disease.
- The sign is characterized by pink blush seen through the tympanic membrane caused by reddish hue over promontory due to increased vascularity of the promontory.
- This sign indicates active ostosclerosis usually during Pregnancy
- It seems that the surgery remains a therapeutic option, when the active phase of the disease is stabilized even following a short course of pharmacological therapy.

119. All are true about central retinal artery occlusion (CRAO) except

a) Most commonly occurs due to thromboembolus

b) Anterior chamber paracentesis is used for treatment

c) Sudden painful loss of vision

d) Occurs due to obstruction of retinal artery at the level of lamina cribrosa

e) Macular area shows cherry-red spot

Correct Answer - C

Answer- C. Sudden painful loss of vision

- Patient notices sudden painless loss of vision.
- Patients's with a patent cilioretinal artery may retain central vision as the macula is spared.
- Emboli are the most common cause of retinal artery occlusion.
- Obstruction occurs at the level of lamina cribrosa.
- The larger retinal arteries are constuicted and look like thin threads while the smaller vessels are scarcely visible.
- The fundus appears milky white because of retinal edema.
- There is cherry-red spot at the macula.
- Blood column within the retinal veins is segmented (Cattle tracking)

120. Not true about blue sclera

a) Seen in osteogenesis impertca

b) Does not seen in Ehlers-danlos syndrome

c) Blue colour is produced by underlying uveal pigment

d) Seen in marfan's syndrome

e) Sclera is thin

Correct Answer - B

Answer- B. Does not seen in Ehlers-danlos syndrome

- Blue Sclera is characterized by marked, generalized blue discolouration of sclera due to thinning, The uveal pigment shines through the thin sclera and produces the blue colour.

Causes of blue Sclera:

- Pseudoxanthoma elasticum
- Osteogenesis imperfecta
- Ehlers-Danlos syndrome
- Marfan's syndrome
- Alkaptonuria
- Hypophosphatasia
- Juvenile paget's disease
- Normal in newborns
- Van der Hoeve's syndrome

121. Corneal ulcer is defined as

a) Erosion of epithelium only

b) Erosion of endothelium only

c) Erosion of epithelium + underlying inflammation

d) Loss of endothelium with loss of corneal sensation

e) None

Correct Answer - C

Answer- C. Erosion of epithelium + underlying inflammation

- Corneal ulcer refers to discontinuation in normal epithelial surface of cornea associated with necrosis of the surrounding corneal tissue

122. Post operative endophthalmitis in cataract surgery can be prevented by use of

a) Pre-operative oral antibiotics

b) Intra-operative IV antibiotics

c) Use of povidone-iodine solution to paint the lids before surgery

d) Cleaning and sterilization of operation theatre

e) Postop topical antibiotics

Correct Answer - C:D:E

Answer- C,Use of povidone-iodine solution to paint the lids before surgery D,Cleaning and sterilization of operation theatre E,Postop topical antibiotics

- The pre- operative topical antibiotic should be started 3 days prior to surgery.
- Preferred antibiotics are fourth generation fluoroquinolones (gatifloxacin, moxifloxacin).
- The topical antiseptic povidone iodine 5% instilled as a single drop l0- 30 minutes before surgery is one of the most effective measure to decrease this bacterial flora.
- Method of prophylaxysis against postoperative endophthalmitis is by use of providone solution on the skin and in conjunctival sac.
- Post- operatively topical antibiotics (eye drops) are given along with steroids for l0 -14 days.

123. All are true about congenital ptosis except

a) Stimulus deprivation amblyopia may occur if treatment is delayed

b) Lid lag on downgaze

c) Prominence of lid crease

d) Loss of lid crease

e) Associated with weakness of the levator palpebrae superioris

Correct Answer - C

Answer- C. Prominence of lid crease

- Ptosis is drooping ofupper eyelid.
- Congenital myogenis ptosis-
- It is the most common type of ptosis.
- Associated with congenital weakness of levator palpebrae sperioris.
- Characterised by drooping of eye lids with absent lid crese and lid lag on downgaze.

124. Which of the following statement(s) is/are true about eyelid glands -

a) Moll are modified sebaceous

b) Tarsal glands are meibomian glands

c) Gland of zeis are sweat gland

d) Meibomian glands are modified sebaceous glands

e) External hordeolum is an acute suppurative inflammation of gland of Zeis

Correct Answer - B:D:E

Answer- (B) Tarsal glands are meibomian glands (D) Meibomian glands are modified sebaceous glands (E) External hordeolum is an acute suppurative inflammation of gland of Zeis

- An eyelid is a thin fold of skin that covers and protects the anterior surface of eyeball.

Eye lid contains many glands as-

1. Meibomian glands- These are also known as tarsal glands
2. Glands of Zeis : These are sebaceous glands
3. Glands of Moll- These are modified sweat glands
4. Accessory lacrimal glands of Wolfring

Stye (Hordeolum externum)-

- Onset is acute
- Effected gland is Zeis's gland
- Type of inflammation suppurative
- C/F- Acute pain and hard swelling

Treatment-

- Hot fomentation, antibiotics

125. True about inferior opthalmic vein -

a) Smaller than superior ophthalmic vein

b) Connected to the pterygoid venous plexus

c) Formed at lateral wall and floor of orbit

d) Pass through superior orbital fissure

e) Empties into superior ophthalmic vein

Correct Answer - A:B:D:E

Answer- (A) Smaller than superior ophthalmic vein
(B) Connected to the pterygoid venous plexus (D) Pass through superior orbital fissure (E) Empties into superior ophthalmic vein

.. The inferior ophthalamic vein begins as a venous network near the anterior part of orbital floor near medial wall of orbit.
2. It is smaller than Superior ophthalamic vein.

Divided into two branches-

.. Inferior orbital fissure to join pterygoid venous plexus
2. Superior orbital fissure to drain into either superior ophthalmic vein or into cavernous sinus.

126. Which of the following can be ophthalmic complication of DM except -

a) Papillopathy

b) Snowflake cataract

c) Retinopathy

d) Rhegmatogenous retinal detachment

e) Cystoid macular oedema

Correct Answer - D

Answer- D. Rhegmatogenous retinal detachment

Ocular manifestations of diabetic retinopathy are-

1) Non- proliferative diabetic retinopathy (NPDR)-

- Microaneurysms
- Retinal hemorrhage
- Retinal edema (Retinal thickening)- macular edema.

2) Proliferative diabetic retinopathy (PDR)

- Hallmark of PDR is the occurance of neovascularization

3) Diabetic maculopathy

- Cataract (Snowflake snow storm)
- Myopia (when there is sudden increase in blood sugar level)
- Rarely hypermetropia
- Cranial nerve palsy: 3rd (most common),4th, 5th,7th.
- Diabetic papillopathy

127. Which of the following is/are true about secondary cataract -

a) Treatment of thickened capsule can be done by discission with cystitome

b) Treatment by Nd-YAG laser posterior capsulotomy

c) More common after intracapsular catract extraction than extracapsular cataract extraction

d) Posterior capsular opacification (PCO)

e) Anterior subcapsular cataract

Correct Answer - A:B:D

Answer- (A) Treatment of thickened capsule can be done by discission with cystitome (B) Treatment by Nd-YAG laser posterior capsulotomy (D) Posterior capsular opacification (PCO)

- Opacification of the posterior capsule is caused by postoperative proliferation of cells in the capsular bag and is the most common complication of ECCE.
- After cataract, if thin, can be cleared centrally by Nd: YAG laser capsulotomy.
- Discission with cystitome or zeigler's knife may also be used.

128. Which of the following is/are true about medial longitudinal fasciculus (MLF) and its lesion except -

a) Unilateral lesion result in adduction palsy of opposite eye

b) MLF connects sixth cranial nerve nucleus of one side with the third cranial nerve nucleus of the other side

c) MLF is responsible for conjugate eye movements

d) It is an integral component of saccadic eye movements

e) Abducting nystagmus of the eye contralateral to the

Correct Answer - A

Answer- A. Unilateral lesion result in adduction palsy of opposite eye

- Voluntary horizontal gaze in one direction begins with the contralateral frontal eye fields
- Contralateral paramedian pontine reticular formation (PPRF), which is the organizing center for lateral gaze in the brain stem
- Medial rectus muscle weakness impsilateral to the side of the lesion with paresis of adduction or adduction lag.

129. True statement about diabetic ketoacidosis is/are?

a) Ph < 7.3

b) Ketonemia

c) Absent urinary ketone bodies

d) Glucose level > 300mg/dl

e) Bicarbonate < 15 meq/1

Correct Answer - A:B:D:E

Answer- A, B, D, E, Ph < 7.3, Ketonemia, Glucose level > 300mg/dl, Bicarbonate < 15 meq/1

- Ketoacidosis is rare in type II diabetes where insulin levels although functionally inadequate are still sufficient to prevent ketone body formation.
- Arterial pH is 7.25 - 7.35, 7.0 -7.24 & < 7.0 in mild, moderate & severe DKA.

Diabetic ketoacidosis is characterized by-

1. Hyperglycemia,
2. Ketosis (ketonemia) and ketonuria
3. Acidosis

- Ketones are an early indicator of diabetic ketoacidosis and should be measured in individlual with type I diabetes mellitus.
- When the plasma glucose is consistently >16.7 mmol/L (300 mg/dl).

Hyperketonemia and acidosis-

- Hormone sensitive lipase is inhibited by insulin and activated by counter regulatory hormones.
- The serum bicarbonate level in D.K.A. is typically decreased to less

than 15meq/l.

130. Components of APACHE-11 score include(s)-

a) Age

b) Glassgow comma scale

c) Pa02

d) Alanine aminotransferase (ALT)

e) Serum lactate

Correct Answer - A:B:C

Answer- A,Age B,Glassgow comma scale C,Pa02

- APACHE II score includes Age, GCS, Physiological parameters (BP, Respiratory Rate, Pa02) and chronic medical conditions.
- APACHE II SCORE (Acute Physiological And Chronic Health Evaluation System)
- The APACHE II scoring system is the most commonly used severity of illness scoring system in North America
- The APACHE II score is recorded as the sum of the Acute physiology score (Vital signs, oxygenation, laboratory values), GCS, Age and Chronic health points as detailed in the following table.

131. Which of the following dyads are correct

a) Pulsus paradoxus-aortic regurgitation

b) Pulsus bisferiens- mitral stenosis

c) Water-hammer pulse-aortic regurgitation

d) Pulsus parvus et tardus - aortic stenosis

e) Collapsing pulse - aortic regurgitation

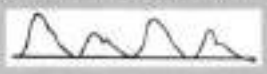
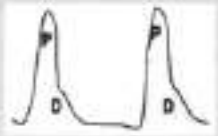
Correct Answer - C:D:E

Answer- C,Water-hammer pulse-aortic regurgitation D,Pulsus parvus et tardus - aortic stenosis E,Collapsing pulse - aortic regurgitation

Arterial & Venous Pulses

Types of Pulses

Type	Character	Disease
Pulsus parvus/Hypokinetic pulse 	Small weak pulse, a narrow pulse pressure, and increased peripheral vascular resistance	Hypovolemia Left ventricular failure Restrictive pericardial disease Mitral valve stenosis Aortic stenosis
Pulsus tardus (Pulsus parvus-et-tardus) 	Slow rising pulse with delayed systolic peak	Severe aortic valve stenosis

Hyperkinetic 	Large, bounding, rapid rise, wide pulse pressure	Complete Heart Block Hyper dynamic circulatory state (Anxiety, Anemia, Exercise, Fever, Beri beri) Patent ductus arteriosus Peripheral AV fistula Aortic & Mitral regurgitation Ventricular Septal Defect
Pulsus paradoxus/Pulsus normalis aggregans 	Decrease in Systolic pressure > 10 mm Hg during inspiration	Cardiac tamponade Chronic constrictive pericarditis (sometimes) Emphysema Bronchial athma (Severe) SVC obtruction
Reversed pulsus paradoxus	Increase in systolic pressure during inspiration	Hypertrophic Obstructive Cardiomyopathy (HOCM), IPPV
Pulsus Bisfriens (Checked in radial artery) 	2 systolic peaks	Severe Aortic regurgitation Combined aortic stenosis & severe aortic regurgitation HOCM
Dicrotic pulse 	1 systolic & 1 diastolic peak	Dilated cardiomyopathy LVF Cardiac tamponade Typhoid Dehydration
Pulsus alternans (Radial artery) 	Alternate strong & weak beat with regular rhythm	Severe Left ventricular functional impairment (e.g. Acute M.I) may occur in paroxysmal tachycardia, Toxic myocarditis for several beats following a premature beat
Water hammer pulse/Collapsing/ Corrigan's 	It is an extreme form of the hyperkinetic pulse. Large bounding pulse associated with increased stroke volume & decreased peripheral vascular resistance	Aortic regurgitation
Pulsus bigeminus 	Normal beat followed by premature beat followed by compensatory pause occurring in rapid succession resulting in alteration in strength of pulse (like pulsus alternans however in pulsus alternans there is no compensatory pause)	Digitalis toxicity

132. Which of the following is/are true about jugular venous pressure (JVP) waveform

a) a wave occur just after electrocardiographic P wave

b) Prominent x and y descents is seen in constrictive pericarditis

c) Canon a waves occur in atrioventricular (AV) dissociation

d) v wave occur in early systole of cardiac cycle

e) Prominent x descent but an absent y descent is seen in cardiac temponade

Correct Answer - A:B:C:E

Answer- A,a wave occur just after electrocardiographic P wave B,Prominent x and y descents is seen in constrictive pericarditis C,Canon a waves occur in atrioventricular (AV) dissociation E,Prominent x descent but an absent y descent is seen in cardiac temponade

- Atrial contraction produces the first pressure peak called the a wave.
- The c wave is the transmitted manifestation of the rise in atrial pressure produced by the bulging of the tricuspid valve into the atria during isovolumetric ventricular contraction.
- The v wave mirrors the rise in atrial pressure before the tricuspid valve opens during diastole.
- a-x descent- Constrictive pericalditis, Cardiac temponade, Restrictive cardiomyopathy
- v - y descent- Ticuspid regurgitation, Constrictive pericarditis

133. Exudative pleural effusion is/are seen in all except -

a) Cirrhosis

b) Carcinoma

c) Bacterial pneumonia

d) Tuberculosis

e) Congestive heart failure

Correct Answer - A:E

Answer- (A) Cirrhosis (E) Congestive heart failure

Collagen vascular disease -

- Rheumatoid arthritis
- SLE
- Drug induced lupus
- Sjogren's syndrome
- Wegener's granulomatosis
- Churg strauss syndrome

Infectious disease-

- Bacterial infection
- Tuberculosis

Gastrointestinal infections-

- Esophagealperforation
- Pancreatic disease
- Intra abdominal abscesses
- Diaphragmatic hernia

Neoplastic-

- Metastatic

- Mesothelioma

134. Neurofibromatosis type 1 is/are associated with -

a) Café-au-lait spots

b) Cataracts

c) Axillary freckling

d) Facial nerve palsy

e) Optic nerve meningioma

Correct Answer - A:C

Answer- (A) Café-au-lait spots (C) Axillary freckling

- Features of Neurofibromatosis 1 are: cafe au lait spots, neurofibromas or plexiform neuroma, freckling, optic glioma and Lisch nodules.

135. Feature(s) of vitamin A toxicity include(s) -

a) Hypercalcemia

b) Yellow skin

c) Anorexia

d) Poor wound healing

e) Papilledema and hepatomegaly

Correct Answer - A:B:C:E

Answer- (A) Hypercalcemia (B) Yellow skin (C) Anorexia (E) Papilledema and hepatomegaly

- Hypervitaminosis A can lead to rupture of lysosomal membrane.
- Acute toxicity- Pseudotumour cerebri (headache, dizziness, vomiting, drowsiness, blurred vision)
- Chronic toxicity- anorexia, weight loss, nausea, bone and joint pain, bone abnormalities and bony swelling.

136. Which of the following can occur in COPD -

a) Hypoxemia

b) Hypercarbia

c) Decreased gas exchange in terminal bronchioles

d) Acidosis

e) Hypocarbia

Correct Answer - A:B:C:D

Answer- A, B, C, D, Hypoxemia, Hypercarbia, Decreased gas exchange in terminal bronchioles, Acidosis

- The most common symptoms of COPD are sputum production, shortness of breath, and a productive cough.
- Emphysema is characterired by destruction of gas-exchanging air spaces i.e. the respiratory bronchioles, alveolar ducts and alveoli.
- Low oxygen levels (hypoxia) then high carbon dioxide level in the blood (hypercapnia /hypercarbia)
- There is a development of respiratory acidosis alo called hpyercapnic acidosis.

137. True about ventilator associated pneumonia (VAP)-

a) 2nd most common nosocomial infection in the intensive care unit

b) Colonization of the pharynx with bacteria is risk factor

c) Highest risk occur in the first 5 days

d) Gastric acid may play a role in protection against nosocomial pneumonias

e) Develops only after 1 week on mechanical ventilation

Correct Answer - A:B:C:D

Answer- (A) 2nd most common nosocomial infection in the intensive care unit (B) Colonization of the pharynx with bacteria is risk factor (C) Highest risk occur in the first 5 days (D) Gastric acid may play a role in protection against nosocomial pneumonias

- Ventilator associated penumonia is 2d most common nosocomial infectionafter urinary tract infection.
- Ventilator-associated pneumonia (VAP) is pneumonia that develops 48 hours or longer after mechanical ventilation is given by means ofan endotracheal tube or tracheostomy.
- VAP results from the invasion of the lower respiratory tract and Lung parenchyma by microorganism.
- Risk for VAP is greatest during the first 5 days of mechanical vantilation.
- Early onset VAP is defined as pneumonia that occurs within 4 days.
- Gastric acid may play a role in protection against nosocomial

pneumonias.

138. Clinical presentation of pituitary apoplexy include(s) all except -

a) Ophthalmoplegia

b) Visual impairment

c) Fever

d) Severe headache

e) Hypertension

Correct Answer - E
Answer- E. Hypertension
1. Severe hypoglycemic
2. Severe headache (usually retro orbital)
3. Impaired consciousness
4. Fever
5. Visual disturbances (visual field defect, visual acuity)
6. Ophthalmoplegia (ocular paresis) → Causing diplopia
7. Hypotension & shock
8. Nausea/vomiting
9. Meningeal sign

139. Which of the following statement(s) is/are true about myasthenia Gravis with muscle-specific tyrosine kinase (MuSK) antibodies than anti-AChR Ab -

a) Disease onset is earlier with female predominance

b) Neck and facial muscle weakness are more common

c) More proximal muscle involvement

d) Associated with thymic hyperplasia

e) Poor response with acetylcholine esterase (AChE) inhibitors

Correct Answer - A:B:C:E

Answer- (A) Disease onset is earlier with female predominance (B) Neck and facial muscle weakness are more common (C) More proximal muscle involvement (E) Poor response with acetylcholine esterase (AChE) inhibitors

Features are-

1. Onset is earlier with female predominance
2. Thymus histology is usually normal
3. Selective facial, bulbar neck or respiratory muscle weakness
4. Involvement of proximal muscles
5. Relative sparing of ocular muscles
6. Poor response to acetylcholinesterase inhibitors (anticholinesterase)

140. Which of the following is/are feature(s) of hypomagnesemia

a) Tremors

b) Improvement seen with calcium supplementation

c) Atheroid movements

d) Seizure

e) Bradycardia

Correct Answer - A:B:C:D

Answer- (A) Tremors (B) Improvement seen with calcium supplementation (C) Atheroid movements (D) Seizure

Clinical features are mostly:

1. Neuromuscular & CNS hyperirritability: Tetany, Seizura, tremer, muscle weakness, ataxia, nystagmus, vertigo, atheroid movement, depression, irritability, delirium and psychosis.
2. Cardiac arrhythmias : Sinus tachycardia, other supraventricular tachycardia, and ventricular arrhythmias.

141. Inflammatory odontogenic cyst is/are

a) Periapical cyst

b) Residual cyst

c) Paradental cyst

d) Eruption cyst

e) Dentigerous cyst

Correct Answer - A:B:C

Answer- A,Periapical cyst B,Residual cyst C,Paradental cyst

- Residual cyst
- Paradental cyst
- Periapical ryst

142. Most accurate method for the diagnosis Gastroesophageal Reflux Disease (GERD) is

a) Histological study

b) Manometry

c) 24-hour pH recording and electrical impedance measurement

d) Barium swallow studies

e) Upper GI endoscopy

Correct Answer - C

Answer- C. 24-hour pH recording and electrical impedance measurement

- The most sensitive test for diagnosis of GERD is 24-h ambulatory pH monitoring.
- Endoscopy is indicated in patients with reflux symptoms refractory to antisecretory therapy; in those with alarming symptoms such as dysphagia, weight loss, or gastrointestinal bleeding; and in those with recurrent dyspepsia after treatment that is not clearly due to reflux on clinical grounds alone

143. All are true about bilateral breast cancer except

a) Bilaterality is common when the tumor in the primary breast is lobular carcinoma

b) About 5% bilateral cancers are synchronous and 20% bilateral cancers are metachronous

c) More common in women of >50 year of age

d) BRCA mutation cancers are associated higher prevalence of bilateral breast cancer

e) Usually b/1 if familial breast cancer present

Correct Answer - B:C

Answer- B,About 5% bilateral cancers are synchronous and 20% bilateral cancers are metachronous C,More common in women of >50 year of age

BRCA mutation is a risk factor for bilateral breast cancer.

Risk factors for bilateral breast cancer are-

- Young age at diagnosis (<50 years of age).
- multicentric disease
- Lobular invasive carcinoma.
- Radiation exposure
- Familial or hereditary breast cancer.

Bilateral breast cancer are-

- Synchronous (simultaneous)
- Metachronous (sequential)
- Metachronous bilateral breast cancer is more common than synchronous.

144. Only simple cholecystectomy is adequate in which stage of gallbladder cancer

a) Stage IA

b) Stage IB

c) Stage III

d) Stage IV

e) None

Correct Answer - A

Answer- A. Stage IA

- According to TNM staging, Simple cholecystectomy is done for T1a which is included in stage-I.
- T1a- simple cholecystectomy
- T1b, II & III- Extended cholecystectomy
- IV- Palliative treatment

145. Which of the following is/are true about Gastric lymphoma

a) Associated with H.pylori infection

b) Majority belongs to B-cell Hodgkin lymphomas

c) Endoscopic ultrasound is performed to determine the depth of gastric wall invasion

d) Second most common tumor of stomach

e) Diagnosis is made on basis of endoscopic biopsy

Correct Answer - A:C:D:E

Answer- A,Associated with H.pylori infection C,Endoscopic ultrasound is performed to determine the depth of gastric wall invasion D,Second most common tumor of stomach E,Diagnosis is made on basis of endoscopic biopsy

- The stomach is the most common site for extranodal lymphoma.
- B- cell lyphomas of mucosa- associated lymphoid tissue (MALT lymphoma).
- Lymphoma is the second most common primary cancer of the stomach.
- Majority of cases (80%) are associated with chronic gastritis and H. Pylori infection.
- It is most prevalent is sixth decade of life.
- MALTomas express B-cell markers CD 19 and CD 20.
- Diagnosis is made by endoscopic biopsy.
- Endoscopic ultrasound is useful to determine the depth of gastric wall invasion.
- Gastric lymphomas are chemosensitive and chemotherapy alone or

along with surgery is used for the treatment of gastric lymphoma.

146. Not included in surgical safety checklist

a) Sign in

b) Sign out

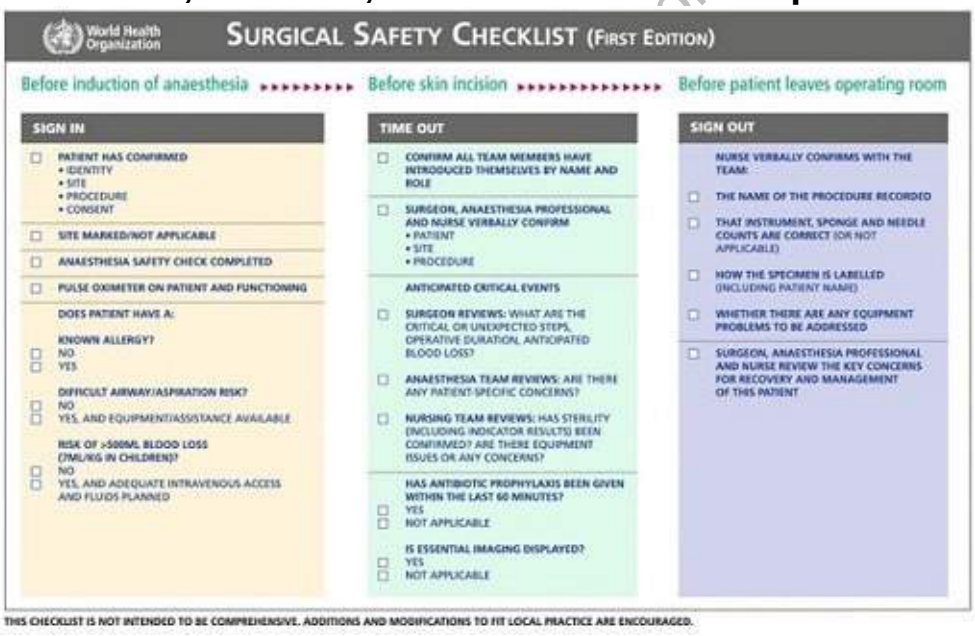
c) Time in

d) Time out

e) Pre anesthetic check up

Correct Answer - C:E

Answer- C,Time in E,Pre anesthetic check up



147. 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.

148. All are true about succinate dehydrogenase deficient gastrointestinal stromal tumor (SDH-deficient GIST) except

a) More common in children and young adult

b) Negative for DOG-1

c) Most common location is stomach

d) Associated with Carney-Stratakis syndrome

e) Absent c-kit mutation

Correct Answer - B

Answer- B. Negative for DOG-1

Succinate dehydrogenase (SDH) deficient - Gastrointestinal Stromal Tumors (GIST)-

Pathological features-

- SDH deficient - GISTs do not have c-KIT mutation --> absence of c-KIT mutation.
- They strongly express KIT and DOG1/Ano-1, but do not have KIT mutation.

Clinical features-

They maY be associated with :-

1. Carney stratakis syndrome - Paraganglioma with familial GIST
2. Carney triad

- These tumors have tendency to appear in children and young adults
- They occur exclusively in stomach.

149. Which of the following is/are true about appendicitis-

a) Both diarrhea and constipation may present

b) Nausea and vomiting usually present

c) Pain on internal rotation of flexed hip

d) Pain on flexion and external rotation of hip

e) Initially pain is located in the periumbilical region

Correct Answer - A:B:C:E

Answer- A,Both diarrhea and constipation may present B,Nausea and vomiting usually presentC,Pain on internal rotation of flexed hip E,Initially pain is located in the periumbilical region

Clinical features-

- Abdominal Pain (most common) is frequently noticed in the periumbilical region.
- Anorexia
- Nausea and vomiting
- Diarrhea or constipation

Signs in Appendicitis-

- Rovsing sign
- Obturator sign
- Psoas sign
- Dunphy sign
- Markle sign
- Mc Burney's sign

150. All are true statement about hernias except

a) Femoral hernia has the highest risk of strangulation of groin hernias

b) Direct inguinal hernia cause more symptoms than indirect

c) Direct inguinal hernia is most common in children

d) Indirect inguinal hernia occur due to patent processus vaginalis

e) Indirect inguinal hernia occur through a defect in fascia transversalis

Correct Answer - B:C

Answer- B,Direct inguinal hernia cause more symptoms than indirect C,Direct inguinal hernia is most common in children

- A femoral hernia has the highest risk of incarceration and strangulation of groin hernias.

151. Mediastinal mass(s) which is/are more common in posterior mediastinum

a) Lymphoma

b) Thymoma

c) Neurogenic tumor

d) Enterogenous cyst

e) Thyroid carcinoma

Correct Answer - C:D

Answer- C,Neurogenic tumor D,Enterogenous cyst

- Most common tumors in the posterior mediastinum are Neurogenic tumors.
- Posterior mediastinal masses include-
- Lymph node enlargement
- Neuroenteric cyst (Enterogenous cyst)
- Anterior meningocele

152. True about undescended testis

a) U/L more common than B/L

b) Missing testis on palpation may be due to agenesis

c) 10% bilateral

d) Undescended testis may be associated with absent kidney

e) Stephen fowler technique involves renal artery ligation

Correct Answer - A:B:C:D

Answer- A,U/L more common than B/L B,Missing testis on palpation may be due to agenesis C, 10% bilateral D,Undescended testis may be associated with absent kidney

- Cryptorchidism is the most common congenital abnormality of the genitourinary tract.
- Cryptorchidism means hidden testis.
- An absent testis may be due to agenesis or atrophy secondary to intrauterine vascular compromise also known as the "vanishing testis syndrome".
- Bilaterally absent testes is anorchia which is 10% cases.
- More common on Right Side.
- Complications of undescended testes
- Torsion can be seen in incomplete testicular descent
- Sterility is seen in bilateral cases (especially intra-abdominal testes)
- Incomplete testicular descent predisposes to malignant disease; cancer is more common in an incompletely descended testes-orchidopexy may or may not diminish the risk.
- Atrophy of an inguinal testes before puberty may possibly be caused by recurrent minor trauma.

153. True about torsion of testis is all except

a) Presents with sudden pain in testis

b) Commonly associated with pyuria

c) Doppler U/S shows decreased blood flow to the testis

d) Simultaneous orchipexy of the other side should also be done

e) All

Correct Answer - B

Answer- B. Commonly associated with pyuria

- Pyuria is associated with epidydimo-orchitis, not with torsion of testis.
- Torsion is the twisting of the testis on the spermatic cord, resulting in strangulation of the blood supply and infarction of testis.
- It is seen commonly in adolescents (10-25 yrs)
- Symptoms -4 it presents as sudden agonising pain in the groin and the lower abdomen. Nausea and vomitting are very common.
- Colour Doppler → detects the decreased blood flow to testis in torsion

154. Condition(s) associated with esophageal carcinoma

a) Achalsia

b) Post-cricoid web

c) Schatzki's ring

d) Paterson-Kelly syndrome

e) Lye ingestion

Correct Answer - A:B:D:E

Answer- A,Achalsia B,Post-cricoid web D,Paterson-Kelly syndrome E,Lye ingestion

rmportant risk factors for SCC carcinoma are :_

i) Alcohol and Cigarette smoking.

.. Mucosal damage from physical agents- Hot tea, Lye ingestion, Radiation induced strictures, Chronic achlasia.

2. other ingested carcinogens - Nitrates, Smoked opiates, Fungal toxins in pickled vegetables

3. Plummer -vinson- Patersol Kelly syndrome (Esophageal (post cricoid) Web + glossitis + Iron deficiency).

4. Tylosis plamaris et plantaris (congenital hyperkeratosis and pitting of palms and soles)

5. Dietary deficiencies of molybednum, Zinc, Vitamin A.

6. Celiac sprue

155. True about pseudocyst

a) Pancreatic fluid collection

b) May be asymptomatic

c) Well-defined wall

d) Fluid collection is always infectious in nature

e) Rich in pancreatic enzymes

Correct Answer - A:B:C:E

Answer- A,Pancreatic fluid collection B,May be asymptomatic C,Well-defined wall E,Rich in pancreatic enzymes

- Pancreatic pseudocyst is the most common complication of both acute and chronic pancreatitis.
- It is not a true cyst as its wall does not have an epithelial lining.
- Fluid of the cyst is rich in pancteatic amylase.
- Most common site for pseudopancreatic cyst is the body and tail of pancreas.

Clinical features-

- Pancreatic pseudocysts show a wide variety of clinical presentations ranging from completely asymptomatic lesions to many symptoms.
- Abdominal pain is MC symptom.

Investigations-

- CECT abdomen is investigation of choice for diagnosis of a pancreatic pseudocyst.

156. Hyperamylasemia is/are seen in all except

a) Pancreatic pseudocyst

b) Cystic fibrosis

c) Macroamylasemia

d) Parotitis

e) Chronic pancreatitis

Correct Answer - B
Answer- B. Cystic fibrosis
Pancreatitis
..
2.. Acute
Chronic
- Pancreatic pseudocyst
- Pancreatic necorsis
- Pancreatic trauma
- Pancreatic carcinoma
- cystic fibrosis

157. Raised intracranial pressure (ICP) in head injury is/are managed by

a) Furosemide

b) Mannitol

c) Decompressive craniectomy is helpful in decreasing ICP but do not affect neurological outcome

d) Glucose free fluid

e) Hypotonic solution

Correct Answer - A:B:C:D

Answer- A,Furosemide B,Mannitol C,Decompressive craniectomy is helpful in decreasing ICP but do not affect neurological outcome D,Glucose free fluid

A) Initial

- Optimise electrolyte balance
- Sedation
- Seizure control

B) Middle (Intermediate)

- Mannitol/furosemide/hyperventilation as temporising measures
- Heavy sedation

C) Last (Final)

- Induction of thiopentone coma
- Decompressive craniectomy
- Hyperglycemia can aggrevate increase ICP, thus glucose free fluid should be used.
- Decompressive craniectomy - Decompressive craniectomy is the surgical removal a large portion of the cranial vault to allow

- for the edematous intracranial contents to expand and subsequently reduce ICP.

158. Indications of surgery in tuberculosis include(s)-

a) Streaky hemoptysis

b) Tubercular empyema

c) Persistent bronchopleural fistula

d) Chronic cough

e) AFB +ye bacilli in sputum

Correct Answer - B:C

Answer- (B) Tubercular empyema (C) Persistent bronchopleural fistula

Destroyed lung

1. Persistent bronchopleural futula
2. Life-threatening hemoptysis (intractable hemorrhage)
3. Aspergilloma in a tuberculous cavity
4. Post surgical complication
5. Performance of diagnostic procedure
6. Tubercular emryerna

159. True about tuberculosis -

a) Cavitatory lesion suggests inactive disease

b) Rasmussen aneurysm is a complication

c) High grade fever

d) Tubercular bronchiectasis occur in lower lobes

e) All

Correct Answer - B

Answer- B. Rasmussen aneurysm is a complication

- Cavitation is a sign of active disease, and is considered as a sign of reactivation
- Fever in TB is usually low-grade and intermittent.
- Rasmussen's aneurysm is an inflammatory pseudoaneurysmal dilatation of a branch of pulmonary artery adjacent to a tuberculous cavity and life threatening complication of cavity tuberculosis.
- Tuberculosis causes upper lobe bronchiectasis.

160. True about Meckel's diverticulum -

a) Causes volvulus of intestine

b) Due to persistent remnant of the vitellointestinal duct

c) Commonly found on the mesenteric side of the ileum

d) Causes melena

e) Causes haemoptysis

Correct Answer - A:B:D

Answer- (A) Causes volvulus of intestine (B) Due to persistent remnant of the vitellointestinal duct (D) Causes melena

- Meckel's diverticulum is the persistent proximal part of the vitellointestinal duct which normally disappears during intrauterine life.
- Bleeding in Meckel's diverticulum is usually the result of ulceration in ileal mucosa
- Hemorrhage may present as rectal bleeding or melana.
- Volvulus of the intestine around the fibrous band attaching the diverticulum to the umbilicus.
- Mesodiverticular band is a remnant of left vitelline artery.

161. Difference b/w full thickness and partial thickness grafts -

a) Partial thickness graft have good cosmetic appearance

b) Full thickness graft are good for large area

c) Edema under graft may cause graft failure

d) Thin graft survive transplantation more reliably

e) Minimal contraction in full thickness graft

Correct Answer - C:D:E

Answer- (C) Edema under graft may cause graft failure (D) Thin graft survive transplantation more reliably (E) Minimal contraction in full thickness graft

Type of Graft	Advantages	Disadvantages
Thin Split Thickness	- Best Survival - Heals Raqidly	- Least resembles original skin. - Least resistance to trauma. - Poor Sensation - Maximal Secondary - Contraction
Thick Split Thickness	- More qualities of narmal skin. - Less Contraction - Looks Better - Fair Sensation - Most resembles normal skin.	- Lower graft survival - Slower healing. - Poorest survival.

Full Thickness	- Minimal Secondary contraction - Resistant to trauma - Good Sensation - Aesthetically pleasing	- Donor site must be closed surgically. - Donor sites are limited.

Edema and necrotic tissue under graft may hamper graft acceptance.

162. Feature(s) of superficial partial thickness burn (second degree) is/are -

a) Hairs easily pluckable

b) Severe pain

c) Thrombosed vessel

d) Leathery skin

e) Blistering of skin

Correct Answer - B:E

Answer- (B) Severe pain (E) Blistering of skin

- these superfcial dermal burns involve the upper layers of dermis
- Blisters are seen
- Erythematous
- Blanch to touch
- Quite painful
- Heal without scarring in 1 to 2 weeks

163. True about hypertrophic scar -

a) Treated with triamcinolone

b) Results from a prolonged inflammatory phase of wound healing

c) Most common in pigmented skin

d) Grow beyond margin

e) Improve spontaneously with time

Correct Answer - A:B:E

Answer- (A) Treated with triamcinolone (B) Results from a prolonged inflammatory phase of wound healing (E) Improve spontaneously with time

- Hypertrophic scars are characterized by erythematous, pruritic, raised fibrous lesions that typically do not expand beyond the boundaries of the initial injury and may undergo partial spontaneous resolution.
- It results from a prolonged inflammatory phese of wound healing and from unfavourable scar siting.
- Hypertrophic scars are common after thermal injuries and other injuries that involve the deep dermis.
- Intralesional injection of Triamcinolone is also the t/t of choice for intractable hypertrophic scars.

164. All are true about basal cell carcinoma EXCEPT:

a) Translucent

b) Retention cyst

c) Cyst of submandibular gland

d) Cyst of minor salivary gland

e) All

Correct Answer - A

Answer- A. Translucent

- Most common site is upper eye lid
- Usually a slow-growing, locally invasive malignant tumour of pluripotential epithelial cells arising from basal epidermis and hair follicles, hence affecting the pilosebaceous skin.
- Basal cell carcinomas usually present as pearly papules containing prominent dilated subepidermal blood vessels (telangiectasias)

165. True about endemic goiter -

a) Size may increase during pregnancy

b) Usually hypothyroid

c) Same as multinodular goiter

d) Can turn malignant

e) None

Correct Answer - A:B:D

Answer- (A) Size may increase during pregnancy (B) Usually hypothyroid (D) Can turn malignant

- Endemic Goiter is the presence of a goiter caused by nutritional deficiency of Iodine.

Effect of pregnancy-

- Increased endocrine demand the iodine metabolism is characterized by the tendency to develop an endogenous iodine deficiency (ID).
- Diffuse thyroid gland hypertrophy can be visibly observed as a goiter ofthe neck.
- Endemic Goiter is ultimately caused by reduced thyroid hormone levels it is accompanied by the clinical syndrome of hypothyroidism.
- Irregular, nodular goiters due to repeated bouts ofiodine deficiency may progress to thyroid follicular carcinoma.

166. True about surgical approach in thyroid surgery -

a) Incision is made 1 cm below cricoid cartilage

b) Usually vertical incision is used

c) Thoracic duct may be damaged

d) For lobectomy thyroid is dissected at the isthmus

e) Strap muscles are divided if greater exposure is needed

Correct Answer - A:C:D:E

Answer- (A) Incision is made 1 cm below cricoid cartilage (C) Thoracic duct may be damaged (D) For lobectomy thyroid is dissected at the isthmus (E) Strap muscles are divided if greater exposure is needed

- Kocher transverse collar incision, typically 4 to 5 cm in length, is placed in or parallel to a natural skin crease 1 cm below the cricoid cartilage.
- The subcutaneous tissues and platysma are incised sharply.
- The RLN b most vulnerable to injury in the vicinity of the ligament of Bery.
- If a lobectomy is to be performed, the isthmus is divided flush tith the trachea on the contralateral side and suture ligated.

167. True about neurogenic claudication -

a) Low back pain is present

b) Fixed walking distance

c) Pain immediately relieved by rest

d) Shiny skin of foot

e) Pain relieved by leaning forward

Correct Answer - A:C:E

Answer- (A) Low back pain is present (C) Pain immediately relieved by rest (E) Pain relieved by leaning forward

- Neurogenic claudication is characterized by low back pain radiating to lower limbs (gluteal region, bock of thigh & leg).
- These symptoms are especially present when standing upright or walking and usually relieved with leaning forward or sitting down

168. True about blunt abdominal trauma -

a) Liver is the most common organ affected

b) Abdominal pelvic CT scanning is helpful for evaluating intra-abdominal and retroperitoneal injuries

c) > 100,000 red cells/µL in peritoneal lavage is considered positive and is indication for exploratory laparotomy

d) More than 2m1 of free blood in the abdominal cavity is indication for exploratory laparotomy

e) FAST-USG is used for initial evaluation

Correct Answer - A:C:E

Answer- (A) Liver is the most common organ affected (C) > 100,000 red cells/µL in peritoneal lavage is considered positive and is indication for exploratory laparotomy (E) FAST-USG is used for initial evaluation

Blunt trauma: In blunt trauma the organs most commonly injured are the solid organs:

- Spleen (MC)
- Liver
- Kidney
- The presence of > 100,000 red cells/pl or >500 white cells/pl is deemed positive (this is equivalent to 2O mL of free blood in the abdominal cavity).
- Positive DPL is an indicationfor emergency exploratory laprotomy.
- Hemodynamically stable patients sustaining blunt trauma are adequately evaluated by abdominal ultrasound or CT.

169. Congenital adrenal hyperplasia is due to deficiency of enzyme –

a) 3ß-Hydrorysteroid dehydrogenase deficiency

b) 5à reductase

c) l7 à-Hydrorylasedeficienry

d) 2l-Hydroxylase deficiency

e) Aromatase

Correct Answer - A:C:D

Ans. (a) 3ß-Hydrorysteroid dehydrogenase deficiency; (C)l7 à-Hydrorylasedeficienry (d) 2l-Hydroxylase deficiency

Congenital adrenal hyperplasia (CAH)

- Group of AR disorder
- MC adrenal disorder in childhood
- Most common 21-hydroxylase deficiency
- In 21a-hyroxylese deficiency
- There is deficiency of mineralocorticoids & glucocorticoid.
- This leads to hypoglycemia, hyponatremia

170. Which of the following is/are true about developmental milestones of 2 years old child -

a) Can walk up & down stairs with alternating feet

b) Walks up and down stairs, one step at a time

c) Rides tricycle

d) Knows age and sex

e) Weight quadruples of birth weight A child is having Wilson disease

Correct Answer - B:E

Ans. is'b' i.e., Walks up and down stairs, one step at a time; 'e' i.e., Weight quadruples of birth weight A child is having Wilson disease

GROSS MOTOR MILESTONES:

Age	**Milestone**
3 months	Neck holding
5 months	Rolls over
6months	Sitting supported
8months	Sitting without support
9months	Stands with support
12months	Stands without support, Walks but falls
15months	Walks alone, Creeps upstairs
18months	Runs, explores drawers
2 years	Walks upstairs (baby steps), Jumps
3 years	Walks upstairs (alternate feet), rides tricycle

4 years Hops on one foot, walks downstairs (alternate feet)

FINE MOTOR MILESTONES:

Age	Milestone
4 months	Bidextrous reach
6 months	Unidextrous reach
9 months	Immature pincer grasp
12months	Mature pincer grasp
15months	Imitates scribbling, tower of 2 blocks
18months	Scribbles, tower of 3 blocks
2 years	Tower of 6 blocks, vertical & circular stroke
3 years	Tower of 9 blocks, copies circle
4 years	Copies cross, bridge with blocks
5 years	Copies triangle

171. Which of the following statement(s) is/are not correct -

a) Kayser-fleischer (KF) ring may be present in eye

b) Serum ceruloplasmin is < 20 mg/dl

c) Hepatic copper is >250 µg/g dry weight of liver

d) In symptomatic patients, the 24 hr urinary copper excretion is less than 40µg /day

e) Liver biopsy is of value for determining the extent and severity of liver disease

Correct Answer - D

Ans. (d) In symptomatic patients, the 24 hr urinary copper excretion is less than 40µg /day

Wilson's disease (Hepatolenticular degeneration)

DIAGNOSIS:

- The gold standard for diagnosis is liver biopsy with quantitative copper assay -> concentration of copper in a liver biopsy sample > 200µg/g dry weight.

Other tests are –

1. Serum ceruloplasmin level -> low(20mg/dl)
2. KF rings
3. Urine copper excretion -> increased (>100µg/day)
4. DNA Haplotype analysis.

172. All are true about wilmstumor except -

a) Painless abdominal mass

b) Mostly asymptomatic

c) Swelling is ballotable

d) Stage I- tumour confined to kidney

e) Completely excision is treatment of choice in stage I & II

Correct Answer - E

Ans. (e) Completely excision is treatment of choice in stage I & II

Presentation of Wilm'stumor :

- Asymptomatic abdominal mass (most common)
- Abdominel swelling (rcnallump) in wilm'stumor is ballottable.
- Abdominal pain (30%)
- Hypertension (25%)
- Heamaturia (10-25%)
- Fever (20%)
- Anorexia and vomiting

Stages	Features
Stage I	Tumor is limited to kideny and completely excised
Stage II	Tumor beyond kidney & completely excised. Regional extension confined to flank
Stage III	Residual non-hematogenous tumor confined to the abdomen. Lymph node involvement of hilus, periaortic chains, or beyond; diffuse peritoneal implants of tumor, tumor extends beyond surgical margins microscopically or macroscopically; tumor not completely removable because of local infiltration into vital structures

Stage IV	Deposits beyond stage III (e.g., lung, liver, bone, brain)
Stage V	Bilateral renal involvement at diagnosis.

Treatment-

1. For tumour confined to renal capsule-

- Radical nephrectomy followed by chemotherapy with antinomycin D and Vincristine

2. For tumour beyond renal capsule

- Nephrectomy followed by local radiotherapy and chemotherapy
- The ideal timing of radiotherapy for Wilms Tumour after surgery is within 10days.

3. Bilateral Wilm's tumour-

- Radical nephrectomy on larger side of tumour and partial nephrectomy on smaller side of tumour.

173. Syndrome(s) related to paediatric brain tumors -

a) Tuberous sclerosis

b) Neurofibromatosis-2

c) Cokayne syndrome

d) Fanconi syndrome

e) Turcot syndrome

Correct Answer - A:B:E

Ans. is'a'i.e., Tuberous sclerosis 'b'i.e., Neurofibromatosis-2;'e'i.e., Turcot syndrome

Familial Syndromes Associated with Paediatric Brain Tumors:

- Neurofibromatosis type I
- Neurofibromatosis type 2
- von Hippel-Lindau syndrome
- Tuberous sclerosis
- Bilateral retinoblastoma
- Li-Fraumeni syndrome
- Cowden syndrome
- Turcot syndrome
- Gorlin syndrome
- Nevoid basalcell carcinoma

174. A 5-month-old infant has massive hepatomegaly. Which of the following condition(s) presents with massive hepatomegaly

a) Type I glycogen storage disorder

b) Biliary atresia

c) Gaucher's disease

d) Biliary cirrhosis

e) None of the above

Correct Answer - A:D

Ans. is'a'i.e., Type I glycogen storage disorder;'d'i.e., Biliary cirrhosis

Causes of massive hepatomegaly:

- Chronic congestive hepatomegaly eg..,
- VSD with heart failure (chronic).
- Cardiomyopathy with congestive heart failure.
- Constrictive pericarditis.
- Chronic extrahepatic cholestasis e.g., congenital biliary atresia.
- Malaria, kala-azar for long duration.
- Glycogen storage disease
- Congenital hepatic fibrosis
- Amoebic liver abscess.
- Hepatoma or secondary malignant deposits.
- Cysts of liver.
- Biliary cirrhosis.

175. True about benign idiopathic neonatal seizures

a) Called as 5d day fits

b) Seizure often occur later in life

c) Status epilepticus may occur

d) Family history is usually present

e) More common in preterm

Correct Answer - A:C

Ans. is 'a' i.e., Called as 5th day fits; 'c' i.e., Status epilepticus may occur

Benign Neonatal Seizures (5th day fits)

- Increasingly recognized syndrome characterized by seizures in the neonatal or infantile period.
- 2 forms :Familial and nonfamilial.
- Quite severe, and status epilepticus is common.

Nonfamilial form is characterized by :

- Idiopathic, self-Limited seizure in previously normal neonates.
- Most commonly occur at day 5

Familial seizures :

- Most frequently have their onset during the first week of life, but onset may occur as late as early infancy.
- These seizures may recur for several months before resolving.
- The family history reveals benign neonatal seizures in other family members.
- Prognosis is favourable in both syndrome, but seizures may occasionally occur later in life in the familial form.

176. Complication(s) of H. type of tracheo-esophageal fistula is/are

a) Dysphagia

b) Aspiration pneumonia

c) Hematemesis

d) Paroxysms of coughing or cyanosis with feeding

e) Death usually occur in infancy

Correct Answer - B:D

Ans. b) Aspiration pneumonia; d) Paroxysms of coughing or cyanosis with feeding

H-Type {Type-E) TEF :

- It accounts for 4-5% of all congenital TEF'

Common clinical features are :

- Recurrent respiratory symptom
- Paroxysms of coughing and cyanosis during feeding'
- Aspiration during feeding with cyanosis
- Abdominal distension.
- Dysphagia is not present because of patency of esophagus
- There may be associated anomalies→
- VACTERL (vertebral, anorectal, cardiac, tracheal, esophageal, renal, radial' limb) syndrome

177. A child is presented with mediastinal mass, swelling of face, dyspnea & stridor, Next line of management is/ are

a) Administration of oxygen with ventimask

b) Tracheostomy

c) Biopsy of mass and fine needle aspiration cytology

d) Mediastinal radiation

e) Rasburicase

Correct Answer - A:B:C

Ans. is.a, i,e., Administration of oxygen with ventimask;'b'i.e., Tracheostomy 'c' Biopsy of mass and fine needle aspiration cytology

- This is a case of superior vena-cava syndrome or superior mediastinal compression syndrome.
- It is a medical emergency and requires immediate diagnostic evaluation and therapy.

Next line of management in the given patient includes :-

- Inclined position if possible
- Oxygen with ventimask
- Tracheostomy
- Biopsy and aspiration cytology
- Furosemide

178. Cause of lower GI bleed in children of age >2year of age

a) TB

b) Meckel's diverticulum

c) Aspirin

d) Esophageal varices

e) It is bleeding from a site distal to ligament of treitz

Correct Answer - A:B:C:E

Ans. is 'a' i.e., TB; "b' i.e., Meckel's diverticulum 'c' i.e., Aspirin; 'e' i.e., It is bleeding from a site distal to ligament of treitz

Lower GI bleeding is defined as bleeding from a site distal to ligament of treitz.

In >2 years:

- Infectious colitis
- Inflammatory bowel disease
- Tuberculosis
- Pseudomembrane colitis
- Cow milk protein allergy
- Uncommon : Amebiasis, cytomegalovirus, neutropenic colitis
- Fissure, Arteriovenous malformation
- Polyposis syndrome
- Solitary rectal ulcer syndrome
- Meckel's diverticulum
- Rectal varices or colopathy
- NSAIDS
- Haemorrhoids; Coagulopathy

- Henoch schonlein purpura

179. In ponseti technique last deformity in to get corrected in CTEV -

a) Equinus

b) Talipus

c) Varus

d) Cavus

e) All deformity corrected simultaneously

Correct Answer - A
Ans (a) Equinus
Ponseti's technique

- This involves first correcting the cavus deformity then the adduction and heel varus andfinally the equinus deformity.
- This technique is now mostly accepted technique for CTEV correction as it is based on better understanding of the pathoanatomy ofthe deformed foot.
- The success of reduction is 90-98 Percent.

180. True about ganglion cyst –

a) Most common in young male

b) Contain synovial fluid

c) Arise from extensor retinaculum

d) It usually arise from the lunotriquetral joint

e) Surgical treatment is excision of cyst

Correct Answer - B:E

Ans. is'b'i.e', Contain synovial fluid;'e'i.e., Surgical treatment is excision of cyst

A ganglion is the commonest cystic swelling at the back (Dorsal aspect) of the wrist.

- Unilocular cyst
- Arises due to leakage of synovial fluid from a joint or tendon sheath.
- Filled with mucinous fluid and lined by fibrous tissue
- Usually develops on the dorsal surface of the scapho-lunate ligament.
- Palmar wrist ganglia usually arise from the volar scapholunate or scapho-trapezio-trapezoid joint.
- More common in young (20-40 years) female.
- No communication between the joint cavity or tendon sheath and the interior of cyst.
- Painless small swelling sometimes it may cause pain.

Treatment :

- Not required.
- For pain NSAIDs
- Swelling increase in size it may be aspirated or surgically excised.

181. True about osteomalacia –

a) More common in male

b) Low PTH

c) Increase alkaline phosphatase

d) Decreased calcium level

e) Looser's zone on X-ray

Correct Answer - C:D:E

Ans. (c) Increase alkaline phosphatase ; (d) Decreased calcium level; (e) Looser's zone on X-ray

Osteomalacia

- Looser's zone (pseudofractures) are radiolucent zones occurring at the sites of stress in osteomalacia (commonly at pubic rami)
- Osteomalacia is more common in women who live in "purdah" & lack exposure to sunlight
- Serum calcium & phosphate is low & alkaline phosphatase is high
- Muscular weakness (The patient feels very weak. He may difficulty in climbing up & down the stairs)

182. Test for anterior cruciate ligament is/are

a) Lachmann test

b) Apley's grinding test

c) Pivot shift test

d) Anterior drawer

e) KT-1000 knee arthrometer is an objective instrument for ACL reconstruction

Correct Answer - A:C:D:E

Ans. is'a' i.e., Lachmann test 'c'i.e., Pivot shift test;'d'i.e., Anterior drawer &'e'i.e., KT-1000 knee arthrometer is an objective instrument for ACL reconstruction

Following tests are used for ACL injury: -

- Lachman's test
- Pivot shift test
- Anterior drawer test
- Jerk test
- Flexion-rotation drawer test
- Loose's test

183. True about ankylosing spondylitis:

a) Romanus lesion may be found

b) If left untreated, spine fusion may occur

c) Predilection of the joints of the axial skeleton

d) Bony erosions do not occur

e) all

Correct Answer - A:B:C

Ans. a. Romanus lesion may be found ;b. If left untreated, spine fusion may occur; c. Predilection of the joints of the axial skeleton

Ankylosing spondylitis (marie-strumpell disease)

- Ankylosing spondylitis is a chronic progressive inflammatory disease of the sacroiliac joints and the axial skeleton.
- rototype of seronegative (absence of rheumatoid factor) spondyloarthropathies.
- **Inflammatory disorder of unknown cause.**
- Usually begins in the second or third decade with a median age of 23, in 5% symptoms begin after 40.
- **Male to female ratio is 2-3 : 1**
- **Strong correlation with HLA-B270-95% of case**
- **9s are positive for HLA - B27.**

Joints involved in ankylosing spondylitis

- Ankylosing spondylitis primarily affects axial skeleton.
- The disease usually begins in the sacro-iliac joints and usually extends upwards to involve the lumbar, thoracic, and often cervical spine.
- In the worst cases the hips or shoulders are also affected. Hip joint

is the most commonly affected peripheral joint.

- Rarely knee (Ebenzar 4th/e 593) and ankle (Apley's 9thle 67) are also involved. Pathology
- Enthesitis i.e. inflammation of the insertion points of tendons, ligaments or joint capsule on bone is one of the hallmarks of this entity of disease.
- Primarily affects axial (spinal) skeleton and sacroiliitis is often the earliest manifestation of A.S..
- Involvement of costovertebral joints frequently occur, leading to diminished chest expansion (normal _ 5 cm)
- Peripheral joints e.g. shoulders, and hips are also involved in 1/3rd patients.
- Extraarticular manifestations like acute anterior uveitis (in 5%); rarely aortic valve disease, carditis and pulmonary fibrosis also occur.
- Pathological changes proceed in three stages?
- Inflammation with granulation tissue formation and erosion of adjacent bone.
- Fibrosis of granulation tissue
- Ossification of the fibrous tissue, leading to ankylosis of the joint.

Radiological features of ankylosing spondylitis

- Radiographic evidence of sacroiliac joint is the most consistent finding in ankylosing spondylitis and is crucial for diagnosis. The findings are :-
- Sclerosis of the articulating surfaces of SI joints
- Widening of the sacroiliac joint space
- Bony ankylosis of the sacroiliac joints
- Calcification of the sacroiliac ligament and sacro-tuberous ligaments
- Evidence of enthesopathy - calcification at the attachment of the muscles, tendons and ligaments, particularly around the pelvis and around the heel.

X-ray of lumbar spine may show :-

- Squaring of vertebrae : The normal anterior concavity of the vertebral body is lost because of calcification of the anterior longitudinal ligament.
- ft Loss of the lumbar lordosis.
- Bridging `osteophytes' (syndesmophytes)
- Bamboo spine appearance

184. True about avascular necrosis of femur

a) Affected side hip allows weight bearing

b) Asymptomatic cases may occur

c) Radionucleotide scan show increased uptake due to new bone formation in the area around the infarct

d) Trendelenburg sign in negative

e) None of the above

Correct Answer - A:B:C

Ans. is'a'i.e., Affected side of hip allow wt. bearing; 'b'i.e., Asymptomatic cases may occur &'c'i.e., Radionucleotide scan show increased uptake due to new bone formation in the area around the infarct

Causes of AVN

- Idiopathic (most common)
- Infection- septic arthritis, osteomyelitis
- Hematological malignancies- leukemia, lymphoma
- Alcohol,corticosteroids
- SLE
- Pregnancy
- Cassions disease
- Hyperlipidemia
- Perthes diseas
- Ionising radiation

CLINICAL FEATURES:

- Pain
- Decease range of motion especially internal rotation followed by abduction.

- Sectoral sign or Differential rotation: - Internal rotation is possible in extended position of hip, but as seen as the hip is flexed to 90^0 no internal rotation is possible. This is the characteristic sign of AVN.
- Trendelenburg's test positive

Radiological findings:

- MRI is the most reliable way of diagnosing marrow changes and bone ischaemia

185. True about pectus excavatum

a) More common in female

b) In severe cases, mitral valve prolapse may occur

c) May be present at birth

d) Seen in marfan syndrome

e) Impairment of respiratory function

Correct Answer - B:C:D:E

Ans. is 'b' i.e., In severe cases, mitral valve prolapse may occur; 'c' i.e., May be present at birth; 'd' i.e., Seen in Marfan syndrome i 'e' i.e., Impairment of respiratory function

Pectus Excavatum

- Also called *funnel chest'* is the most common chest wall deformity.
- Males are affected more than females (4:1).
- Pectus excavatum arises from imbalanced or excessive growth of the lower costal cartilages.
- Typically the defect is diagnosed within the first yr of life and worsens over time.
- Depression may range from mildly depressed sternum to sternal depression abutting the vertebral column with displacements of mediastinal structures.

Other conditions associated with Pectus Excavatum:

- **Scoliosis**
- Marfan's syndrome
- Mitral valve prolapse
- Congenital heart diseases

186. A person has injury on dorsal surface of proximal interphalangeal joint of right middle finger. Which of the following can occur

a) Rupture of lateral ligament

b) Buttonhole deformity

c) Mallet finger

d) Laceration of the central slip of the extensor

e) None of the above

Correct Answer - A:B:D

Ans. is 'a' i.e., Rupture of lateral ligament; 'b' i.e., Buttonhole deformity; 'd' i.e., Laceration of the central skip of the extensor

Injury to dorsal surface of proximal interphalangeal joint (zone II) may cause : -

- Rupture of central slip of extensor expansion - causing Buttonhole deformity.
- This results in loss of active extension of the PIP joint and persistent flexion of the PIP joint.
- Anterior dislocation of PIP joint may cause rupture of both central clip as well as lateral ligament.

187. Pregnancy aggravates which of the following condition(s)-

a) Hypertension

b) Anaemia

c) Rheumatoid arthritis

d) Acne

e) All

Correct Answer - A:B

Ans.is'a'i.e.,Hypertension;&'b'i.e. Anaemia

Important medical conditions which are aggravated in pregnancy

- Congenital heart diseases
- Rheumatic heart diseases
- Non-rheumatic valvular heart disease
- Anemia
- Pulmonary hypertension
- Renal failure
- Hypertension

188. True statement regarding magnesium sulphate use in eclampsia & pre-eclampsia is/are?

a) Used for the treatment of hypertension

b) Can be used continuous intravenous as well as intermittent intramuscular

c) In > 95% of cases successfully controls seizures of eclampsia

d) Toxicity can be treated by stopping further administration and giving calcium gluconate

e) Administration is continued for 24 hours after delivery

Correct Answer - B:C:D:E

Ans. is 'b' i.e., Can be used continuous intravenous as well as intermittent intramuscular, 'c' i.e., In > 95% of cases successfully controls seizures of eclampsia, 'd' i.e., Toxicity can be treated by stopping further administration and giving calcium gluconate & `e' i.e., Administration is continued for 24 hours after delivery

MAGNESIUM SUPHATE IN ECLAMPSIA & PRE-ECLAMPSIA:

- Indicated to prevent seizures associated with pre-eclampsia, and for control of seizures with eclampsia
- In > 95% of cases successfully controls seizures of eclampsia.

Dose: 4-5 g (diluted in 250 mL NS/D5W) IV in combination with either :

- Up to 10 g (10 mL of undiluted 50% solution) divided and administered IM into each buttock or

- After initial IV dose, 1-3 g/hr IV.
- MgSO4 is continued 24 hours after delivery to prevent post-partum eclampsia

Monitoring:

- Throughout the administration of magnesium, the patient needs continuous clinical monitoring for magnesium toxicity
- Toxicity is manifested by loss of deep tendon reflexes (patellar), decrease in respiratory rate, oliguria and altered mental status.
- Comparatively, loss of deep tendon reflexes appears to be the earliest of all the signs and it occurs when the magnesium level exceeds 5 mmol/L.

Toxicity of MgSO4 is monitored by:

- Urinary output,
- Respiratory rate,
- Knee jerk

189. Finding(s) of atrophic vaginitis is/are

a) Low pH of vagina

b) Occur due to estrogen deficiency

c) Frequent intercourse is useful

d) Intercourse causes painless bleeding

e) Estradiol vaginal ring is helpful

Correct Answer - B:E

Ans. b) Occur due to estrogen deficiency; e) Estradiol vaginal ring is helpful

Atrophic Vaginitis

- Also called senile vaginitis, is the thinning of vaginal wall due to decreased estrogen levels.
- Most common after menopause, but may also develop after surgical removal of ovaries.
- There is atrophy of vulvovaginal structure'
- The acidity of vagina is decreased causing increase in pH.

Important clinical features are :-

- Dry vagina
- Thinning of vaginal wall
- Shortening and tightening of vaginal canal
- Dyspareunia
- Spotting (bleeding) after intercourse
- Purulent, often blood tinged discharge
- Pain or burning with urination
- Frequent UTIs
- Urinary incontinence

Treatment includes:

- Intravaginal application of estrogen cream, estradiol vaginal ring and Systemic estrogen therapy

190. Feature(s) of HELLP syndrome

a) Low platelets

b) Increased AST and ALT

c) Decreased lactate dehydrogenase

d) Increased conjugated bilirubin

e) Hemolysis

Correct Answer - A:B:E

Ans. a) Low platelets; b) Increased AST and ALT; e) Hemolysis

HELLP syndrome is an acronym for Hemolysis (H), Elevated liver enzymes (EL) and Low Platelet count (LP) of < 1,00,000/mm^3

Clinical Features:

- Manifested by nausea, vomiting, epigastric or right upper quadrant pain, along with biochemical and haematological changes.
- Parenchymal necrosis of liver iauses elevation in hepatic enzymes (AST and ALT > 70 IU/L and LDH > 600 IU/L)
- There may be subcapsular hematoma formation (which may need CT scanning) and abnormal peripheral smear.
- Eventually liver mav rupture to cause sudden hypotension, due to hemoperitoneum

191. Risk factors for abruptio placenta is/are

a) Traumatic separation of the placenta

b) Mutigravida

c) Diabetes

d) Gestational hypertension

e) Submucous fibroid

Correct Answer - A:B:D:E

Ans.a) Traumatic separation of the placenta ; b) Mutigravida; d) Gestational hypertension; e) Submucous fibroid

ETIOLOGY:

- Primary cause of A P is uncertain

Several associated conditions identified:

- Increase in age & parity: 1.3-1.5%
- Pre-eclamsia: 2.1-4%
- Chronic hypertension: 1.8-3%
- Preterm ruptured membranes: 2.4-4.9%
- Multifetal gestation: 2.1%
- Cigarette smoking: 1.4-1.9%
- Cocaine abuse: NA
- Folic acid deficiency
- Prior abruption: 10-25%
- Uterine leiomyoma: NA
- Hydromnios: 2%

192. All is/are true about HIV in pregnancy except

a) Vertical transmission to the neonate is about 15-30%

b) HAART therapy of pregnant woman reduces chance of transmission to neonates

c) Zidovudine therapy should be given to neonates

d) Elective caesarean section reduces the risk ofvertical transmission

e) Zidovudine is given in place of stavudine in HAART therapy if mother is anaemic

Correct Answer - E

Ans. (e) Zidovudine is given in place of stavudine in HAART therapy if mother is anaemic

Management of HIV in pregnancy:

Antepartum :-

- Most patients will be asymptomatic.
- Patient requires obsteric care + HIV care. Consult HIV specialist.
- MTP option is offered.
- Nutritional supplement including micronutrients.
- Routine antenatal investigation + Baseline CBC, LFT,RFT.
- Investigations of STDs, TB, Toxoplasmosis, Cytomegalovirus.
- CD4 count & vital load in each trimester. If CD4 count < 200, prophylactic Antibiotics are indicated.
- Counsel against unprotected coitus.
- USG- Routine + Fetalwell being assessment.
- Avoid invasive procedures.

Anti Retroviral Therapy(ART)

ACTG 076 regimen:-(AIDS Clinical Trial Group)

- **Zidovudine**(AZT)
- Reduction of transmission:- 25.5% to 8.3%

CDC Thai regimen :-

- Zidovudine(AZT)
- Reduction of transmission:- 50%

HIV NET 012 regimen:-

- **Nevirapine**
- Reduction of transmission:- 47%

PETRA study:- Zidovudine(AZT) + **Lamuvidine**(3TC)

- Reduction of transmission :- 69%

INTRAPARTUM MANAGEMENT

- **Elective LSCS** reduces perinatal transmission upto 50-80%.

During Delivery:-

- Avoid ARM
- Avoid Vaginal tears
- Avoid Instrumental delivery
- Restrict Episiotomy
- Avoid fetal scalp electrode/ fetal blood sampling

POSTPARTUM MANAGEMENT:

- Wash newborn after birth,especially face.
- Mouth suction is avoided
- Avoid hypothermia
- **Anti Retroviral Therapy (ART)**
- All vaccines to asymptomatic children & only inactivated vaccines to symptomatic children
- New born testing
  - ELISA TEST false positive upto 18 months
  - Before that to consider newborn positive 2 tests must be positive from HIV 1 culture,p-24 antigen,PCR

193. True statement about vacuum extraction ofbaby -

a) Pressure is maintained b/w 5 kg/cm^2 to 8 kg/cm^2

b) Done when cervix is fully dilated

c) Centre of cup should be placed 1 cm in front of posterior fontanelle

d) Cup rim should be placed 3 cm from the anterior fontanelle

e) All the above

Correct Answer - B:D

Ans. (b) Done when cervix is fully dilated; (d) Cup rim should be placed 3 cm from the anterior fontanelle

INDICATIONS OF VENTOUSE DELIVERY:

- Fetal heart rate abnormalities
- Low fetal scalp pH
- Non-progressive labour in 2nd stage
- Maternal exhaustion
- Cervix should be full dilated.
- The pressure is kept between 0.2 kg/cm^2, to 0.8 kg/cm^2
- The flexion point is found along the sagittal suture, approximately 3 cm in front of the posterior fontanel and approximately 6 cm from the anterior fontanelBecause cup diameters range from 5 to 6 cm, when properly placed, the cup rim lies 3 cm from the anterior fontanel

194. True statement about primary dysmenorrhea -

a) Pain starts 2-3 day before menstruation and stops after 1day of menstruation

b) Pain begins a few hours before or just after the onset of a menstrual period and may last 48 to 72 hours

c) May be associated with Psychological factors

d) GnRH antagonists are always used in 1st line treatment

e) All

Correct Answer - B:C

Ans. is 'b' i.e., Pain begins a few hours before or just after the onset of a menstrual period and may last 48 to 72 hours; &'c' i.e., May be associated withpsychological factors

- Primary dysmenorrhea occurs during ovulatory cycles and usually appears within 6 to 12 months of the menarche.
- Pain in dysmenorrhea begins a few hours before or just after the onset of menstruation and usually lasts 48-72 hours.

Associated Symptoms

- Nausea and vomiting
- Fatigue
- Diarrhoea
- Lowerbackache
- Headache
- Behavioural and psychological

Treatment

- NSAIDs are the drugs of choice for treatment of primary

dysmenorrhea,
- OCPs

195. Which of the following statement(s) is true about abdominal incision in women for various surgical procedures -

a) Paramedian: best incision

b) Transverse incision should be only used in exceptional cases

c) Cherney incision is useful in uro-gynaecological procedures

d) Maryland incision provide improved access to the pelvic side wall

e) Rutherford-morrison is particularly useful for approaching ovarian masses

Correct Answer - C:D:E

Ans. is'c'i.e., Cherney incision is useful in uro-gynaecological procedures; 'd' i.e., Maylard incision provide improved access to the pelvic side wall; &'e'i.e., Rutherford-Morrison is particularly useful for approaching ovarian masses.

Facts about abdominal incisions in obstetrics

- Most commonly preferred incisions → Midline vertical incision or suprapubic transverse incision (Pfannenstiel incision).
- Paramedian or midline transverse incision are not used except in exceptional situations. . Maylard incision provide improved access to pelvic side wall.

Cherney incision is useful for :

- Oncological surgery
- Complexurogynaecological procedures (if incision is placed lower).
- Rutherford-Morrison is particularly useful for reaching the ovarian masses in pregnancy (especially in 2nd half).

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

a) Warthim's hysterectomy

b) Local excision

c) Colposcolic study and biopsy

d) HPV DNA testing

e) 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

197. Screening test used in first trimester for aneuploidy –

a) PAPP-A &estradiol

b) PAPP-A & AFP

c) PAPP-A &beta HCG

d) Beta HCG & inhibin

e) 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.

198. Absolute contraindication of medical abortion –

a) RHD

b) Ectopic pregnancy

c) Hypersensitivity to prostaglandins

d) Corticosteroid therapy

e) 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

199. Vaginal prolapse following abdominal hysterectomy is/ are caused by damage of

a) Level I support

b) Level II support

c) Level III support

d) Urogenital diaphragm

e) All the above

Correct Answer - E

Ans. e) All the above

Vaginal prolapse can be divided into :-

- Level I : damage causes uterine descent, enterocele, vault descent'
- Level II : damage cause cystocele, rectocele
- Level III : damage causes urethrocele, gaping introitus and deficient perineum
- The middle part of vagina is supported by the urogenital diaphragm

200. Contraindication of combined oral contraceptive (COC) include(s)-

a) Severe hypertension

b) Ischemic heart disease

c) Pre-menstrual tension

d) Active liver disease

e) All

Correct Answer - A:B:C:D

Aps. is'a' i.e., Severe hypertensiorr;'b' i.e., Ischemic heart disease; &'d' i.c', Active liver disease

Contraindications of OCPs (WHO guidelines)

Absolute :

- Thromboembolism event, cerebrovascular accident, coronary artery disease,
- Breast cancer,
- DM (> 20 years duration)
- Impending major surgery
- Hyperlipidaemia
- Pregnancy
- Lactation (< 6 weeks post partum)
- Active liver disease, hepatoma
- Uncontrolled hypertension or with vascular diseases
- > 35 years old and heavy smoker (> 20 cigarettes/day)
- Migraine with aura
- Diabetic nephropathy/neuropathy/ retinopathy
- Structural heart disease with pulmonary hypertension, AF or SABE.

Relative :

- Lactation (6 weeks - 6 months)
- Controlled hypertension
- Undiagnosed vaginal bleeding
- Migraine without aura
- Gall bladder disease
- Age > 35 years and light smoker (< 20 cigarettes/day)
- DM with vascular complications.

201. Chronic use of combine oral contraceptive (COC) helps in all except

a) Dysmenorrhea

b) Breakthrough bleeding

c) Menorrhagia

d) Migraine

e) Anaemia

Correct Answer - B:D

Ans. b) Breakthrough bleeding & d) Migraine

OCPS

ADVANTAGES:

- Controls fertility
- Treats Menorrhagia & polymenorrhoea.
- Relieve dysmenorrhoea and premenstrual tension
- Prevents anaemia
- Lowers chances of
- Fibrocystic disease
- Ovarian cyst
- Ovarian ,uterine & anorectal malignancy
- PID
- Ectopic pregnancy
- Useful in acne, PCOD and endometriosis
- Prevent RA

Non contraceptive benefits of OCPs:

- Cycle stabilization
- Cure of menstrual disorder- useful in menorrhagia & polymenorrhea

- Prevents anemia.
- Reduces the incidence of ectopic pregnancy.
- Protection against cancer – Ovarian ,Endometrial
- Benign tumour - Benign breast disease, Ovarian functional cyst, Fibromyoma uterus
- Protects - PID, Anemia, Endometriosis, PCOD, Acne, hirsutism, Rheumatoid arthritis, Osteoporosis

202. Contraindications for IUCD

a) Postabortal sepsis more than 1 year ago

b) Present cervicitis and vaginitis

c) Past history of ectopic Pregnancy

d) Unknown cause of vaginal bleeding

e) Severe dysmenorrhea

Correct Answer - B:C:D:E

Ans: b) Present cervicitis and vaginitis; c) Past history of ectopic Pregnancy; d) Unknown cause of vaginal bleeding; e) Severe dysmenorrhea

Contraindications for placing IUCD are:

- Suspected pregnancy
- PID
- Presence of fibroids
- Menorrhagia and dysmenorrhoea of copper T is used.
- Severe anemia
- Diabetic women who are not well controlled.
- Heart disease
- Scarred uterus
- Previous ectopic pregnancy
- Levonorgestrel IUCD in breast cancer
- Preferably avoid its use in unmarried nulliparous patient because of the risk of PID.

203. Which of the following statement(s) is/are true about cysts in ovary except-

a) Follicular cyst is least common among functional cyst

b) Corpus luteal cysts are often associated with Pregnancy

c) Dermoid cyst are germ cell tumor

d) Fibroma of ovary is associated with Meig's syndrome

e) Theca leutin cyst is seen in association with hydatiform mole and GnRH analogue use

Correct Answer - A

Ans. a) Follicular cyst is least common among functional cyst

Functional ovarian cysts :

- Benign mass in the ovary

These cysts are:-

- Follicular cyst: Most common functional ovarian cyst. It is of small size, rarely is larger than 8 cm.
- Corpus luteum cyst: May be associated with pregnancy and persist upto 14 weeks as normal physiological structure.
- Theca lutein cysts: Least common of functional ovarian cysts. Usually bilateral and occur with pregnancy, including molar pregnancies. associated with multiple gestations, molar pregnancies, choriocarcinoma, diabetes, Rh sensitization, clomiphene citrate use, human menopausal gonadotropin-human chorionic gonadotropin ovulation induction, and the use of GnRH analogues.
- All teratomas, including benign mature teratoma (dermoid cyst), are germ cell tumors.

- Combination of an ovarian fibroma with ascites and hydrothorax (usually right sided) is known as Meig's syndrome.

204. Dermatologic manifestation of lithium is/are -

a) Rash

b) Psoriasis exacerbation

c) Acneiform eruptions

d) Pustular dermatoses

e) Pemphigus

Correct Answer - B:C:D

Ans. (B) Psoriasis exacerbation (C) Acneiform eruptions (D) Pustular dermatoses

[Ref. NeenaKhanna p. 45; KDT 7e/e p. 449]

Dermatological side effects of lithium

- Acneiform eruptions
- Exacerbation Of Psoriasis
- DLE
- Pustular dermatosis
- Alopecia, thinning & drying of hair
- Itching skin

205. Subepidermal blisters is/are seen in -

a) Pemphigus vulgaris

b) Pemphigus vegetans

c) Pemphigoid

d) Dermatitis hepetiformis

e) Pemphigus foliaceus

Correct Answer - C:D

Ans. (C) Pemphigoid (D) Dermatitis hepetiformis

[Rel Neena l(hanna 5e/e p. 76]

Subepidermal (Dermo-epidermal)

Functional (At Basal lamina)

- Junctional epidermolysis bullosa
- Bullous pemphigoid
- Toxic epidermal necrolysis
- Dermolytic (Below Basal lamina)
- Epidermolysis bullosa acquisita
- Epidermolysis bullosa dystrophica
- Dermatitis Herpetiformis
- Deep burns
- Porphyria cutanea tarda

206. Desmoglein is associated with ?

a) Arrhythomogenic right ventricular cardiomyopathy

b) Hypertrichosis

c) Pemphigus vulgaris

d) Psoriasis

e) Keratoderma with wooly hair

Correct Answer - A:C:E

Ans. (A) Arrhythomogenic right ventricular cardiomyopathy (C) Pemphigus vulgaris (E) Keratoderma with wooly hair

Desmoglein:

- Pemphigus foliaceus,
- pemphigus vulgaris (mucocutaneous type) paraneoplastic pemphigus
- Staphylococcal scalded skin syndrome
- Bullous impetigo
- Striate palmoplantar keratoderma

207. Drugs known to trigger malignant hyperthermia -

a) Halothane

b) Succinylcholine

c) Pancuronium

d) Fentanyl

e) Propofol

Correct Answer - A:B

Ans. (A) Halothane (B) Succinylcholine

[Ref Morgan Anaesthesia 5th/e p. 1187-9A; Aiay Yadav p. 13j- 35; Miter p. 1187-89; Lee l3'h/e p. 353; Wylle's Aflaesthesifl Vh/c p. I65-67]

Drugs causing Malignant hyperthermia (MH):

- Succinylcholine
- Halothane
- Isoflurane
- Enflurane
- Sevoflurane
- Desflurane
- Methoxyflurane
- MAO inhibitors
- TCA
- Phenothiazines
- Lignocaine

208. When will you suspect malignant hyperthermia in post appendectomy patient shifted to ICU with high fever & -

a) Hypotonia

b) Seizure

c) Masseter spasm

d) Metabolic acidosis

e) Hypokalemia

Correct Answer - B:C:D

Ans. (B) Seizure (C) Masseter spasm (D) Metabolic acidosis

[Ref: Morgan Anaesthesia 5'h/e p. 1187-90; Ajay Yadav Se/e p. 133-35; Miller Thle p, 1187-89; Lee l3'h/e p. 35i; Wylie's Anesthesia Vh/e p. j65, 367]

Malignant hyperthermia:

- The condition occurs during or immediately after anaesthesia and may be precipitated by potent inhalation agents (enflurane, halothane, isoflurane), or suxamethonium.

Clinical features are: -

- Masseter sPasm → If a patient develops severe masseter spasm after suxamethonium, there is a significant possibility of malignant hyperthermia.
- Tachycardia and arrhythmias
- Rise in end-tidal CO, (first sign)
- Increased temperature & unexpected change in BP.
- Seizures agitation and muscle rigidity

209. Which of the following is/are used in bupivacaine toxicity -

a) $CaC1_2$

b) Bretylium

c) Intralipids

d) Esmolol

e) Epinephrine

Correct Answer - B:C:E

Ans. (B) Bretylium (C) Intralipids (E) Epinephrine

[Re!. Morgan Anaesthesia Sth/e p. 273-74; Ajay yadav 5'h/e p. 144; Miller 6th/e p. 933; Lee l3th/e p. 384; Barash Anaesthesia 6,h/e p. 545]

Management of bupivacaine toxicity

- Ensure adequate oxygenation, whether by face mask or by intubation.
- Anticonvulsants such as benzodiazepines and barbiturates are the drug of choice for seizure control.
- Propofol can also be used.
- Succinylcholine is sometimes also used to terminate the neuromuscular effects of seizures.
- For unresPonsive bupivacaine toxicity, intravenous lipid or cardiopulmonary bypass may be considered.
- For arrhythmias, amiodarone is the DOC. Bretylium and esmolol can also be used.

210. Anaesthesia used for induction is/are -

a) Propofol

b) Thiopentone

c) Ketamine

d) Diazepam

e) Midazolam

Correct Answer - A:B:C:E

Ans. (A) Propofol (B) Thiopentone (C) Ketamine (E) Midazolam

[Ref: Morgan Anaesthesia 5th/e p. 175-82; Ajay Yadav S,h/e p. 92; Lee l3th/e p. 155]

Intravenous inducing agents:

- Thiopentone
- Methohexitone
- Propofol
- Etomidate
- Ketamine
- Benzodiazepines

211. Which of the following criteria is/are used for settingmechanical ventilator for adult in ICU -

a) Age

b) Gender

c) Weight

d) Height

e) Underlying condition of patient

Correct Answer - B:C:D:E

Ans. (B) Gender (C) Weight (D) Height (E) Underlying condition of patient

[Ref: Morgan Anaesthesia 5th /e p. 1288; emedicine.medscape.com]

- Mainly depends on ideal body weight (IBW), which is calculated based on gender and height.
- Women IBW(lbs) = 105 + 5 (Height in inches - 60)
- Men IBW (lbs) = 106 + 6 (Height in inches - 60)
- Settings also depend a types of lung disease, i.e. whether the patient is normal or with restrictive disease or with obstructive lung disease

212. True about endotracheal tube -

a) Non cuffed tube is used in pediatric age group

b) Made of PVC & disposable

c) Can be put either oral or nasal according to different situations

d) Cuffed PVC tubes - low pressure, low volume

e) More tendency to go to right bronchus thereby

Correct Answer - A:B:C:E

Ans. (A) Non cuffed tube is used in pediatric age group (B) Made of PVC & disposable (C) Can be put either oral or nasal according to different situations (E) More tendency to go to right bronchus thereby

[Ref: Morgan Anaesthesia p. 320-25; Ajay Yedav 5'h/e p. 43-46; Lee l3th/e p. 205-09]

Endotracheal tubes are mainly of two types.

Cuffed Endotracheal Tube:

- Cuff Pressure should not exceed 30 cm H2O (22 mm Hg) to prevent ischemic damage to tracheal mucosa.
- Two types, based on cuff pressure and volume.

Low Pressure, High volume : -

- In this cuff has high volume & low pressure.
- Because of low pressure these tubes produce less tracheal injury, therefore suitable for prolonged surgeries.0
- More commonly used than high pressure low volume tube.
- These tubes are made up of polyvinyl chloride

High pressure,low volume:

- Made up of red rubber.

Uncuffed Endotracheal Tube:

- In children (less than l0 years of age) uncuffed tubes should be used and there should be slight teak on inspiratory pressure of 30 cm IIrO

213. True about endotracheal intubation -

a) Head trauma patient presenting with a GCS score 8 or less should be intubated

b) Done in patients with increased risk of aspiration

c) Can be used in patient with full stomach

d) In cervical injury, patient neck is stabilized before intuvation

e) Done in patients who need anaesthesia

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

Ans. (A) Head trauma patient presenting with a GCS score 8 or less should be intubated (B) Done in patients with increased risk of aspiration (C) Can be used in patient with full stomach (D) In cervical injury, patient neck is stabilized before intuvation (E) Done in patients who need anaesthesia

[Ref Lee l3tt'/e p. 208; Miller Vh/ep. /586; CSDT l4th/e p. 814]

- Endotracheal intubation is used to maintain a patent airway in operation theater as well as outside the operation theater : -

Indications for Endotracheal Intubation in the operating room include:

- The need to deliver positive pressure ventilation.
- Protection of respiratory tract from aspiration of gastric contents.
- Surgical procedure involving the head and neck or in non-supine positions that preclude manual airway support.
- Almost all situations involving neuromuscular paralysis.

Some non-operative indications are :

- Tracheobronchial toilet (pulmonary toilet).
- Profound disturbance in consciousness with the inability to protect the airways.

214. Which of the following is/are feature(s) of epidural anaesthesia than spinal anaesthesia -

a) Smaller size of needle is used

b) Drug used is less in concentration

c) Less chance of spinal headache

d) Onset of action is delayed

e) Density of anaesthetic agent is less in epidural than spinal

Correct Answer - B:C:D:E

Ans. (B) Drug used is less in concentration (C) Less chance of spinal headache (D) Onset of action is delayed (E) Density of anaesthetic agent is less in epidural than spinal

[Ref Morgan Anaesthesia p. 959,969; Ajay Yadav 5'h/e p. 162; Miller Vh/e p. 1626]

Epidural anaesthesia:

- Slower onset of action
- Less reliable
- Difficult
- Duration can be prolonged by repeatedly injecting LA by an epidural catheter.
- Can be used for upper abdominal, thoracic & neck surgery as well in addition to surgeries performed by spinal anaesthesia.
- PDPH is unlikely because dura is not pierced -> so, there is no CSF leakage.
- Epidural needles are larger than spinal needles.

215. Feature(s) of crohn's disease is/are -

a) Pipestem colon

b) Pseudosacculation

c) Loss of haustrasion

d) Cobblestone appearance

e) String sign of kantor

Correct Answer - B:D:E

Ans. (B) Pseudosacculation (D) Cobblestone appearance (E) String sign of kantor

Radiological findings of CD are : -

- Earliest changes are aPhthous lesions or erosions (central flecks of barium surrounded by a translucent halo). These lesions are also known as Target lesions or Bull's eye.
- String sign of Kantor : - Greatly narrowed terminal ileum due to inflammation and fibrosis.
- 'Creeping-faf"sign (On CT) :- Inflammatory changes in the adjacent mesenteric fat.
- Comb sign: - Prominent vasa recta of mesenteric vessels.
- Discontinuous involvement (Skip areas are present).
- Cobblestone appearance
- Raspberry rose thorn appearance
- Pseudosacculation

216. Neoadjuvant chemotherapy stands for -

a) Chemotherapy along with surgery

b) Chemotherapy before surgery

c) Chemotherapy after surgery

d) Chemotherapy along with radiation therapy

e) Chemotherapy after radiation therapy

Correct Answer - B

Ans. B. Chemotherapy before surgery

[Ref: Katzung 13th/e p.919-20; chemoth.com/neoadjuvant-chemotherapy]

- Neoadiuvant chemotherapy refers to Combination of Chemotherapy and surgery/radiotherapy in which chemotherapy is given prior to surgery/radiotherapy.

217. True about concomitant chemoradiotherapy -

a) Chemotherapy and radiotherapy both given simultaneously

b) Radiotherapy acts locoregionally and chemotherapy acts against distant micrometastases

c) Radiotherapy acts as sensitizing agent

d) Chemotherapy may act as sensitizing agent

e) None

Correct Answer - A:B:D

Ans. (A) Chemotherapy and radiotherapy both given simultaneously (B) Radiotherapy acts locoregionally and chemotherapy acts against distant micrometastases (D) Chemotherapy may act as sensitizing agent

Concomitant chemoradiotherapy

- Radiotherapy and chemotherapy are given simultaneously.
- Three clinical rationales support the use of chemotherapy delivered concurrently with radiation.
- First, concomitant chemoradiotherapy can be used with organ-preserving intent, resulting in improved cosmesis and function compared with surgical resection with or without adjuvant treatment.
- Second, chemotherapy can act as a radiosensitizer, improving the probability of local control and, in some cases, survival, by aiding the destruction of radioresistant clones.
- Third, chemotherapy given as part of concurrent chemoradiation may act systemically and potentially eradicate distant micrometastases.

218. Which of the following is/are true about brachytherapy than teletherapy -

a) More effective in carcinoma cervix

b) Same proportion of radiation is delivered to both-tumour & normal tissue

c) Better than teletherapy for large & bulky tumour

d) Deliver higher dose of radiation to tumour

e) Less damage to normal tissue

Correct Answer - A:D:E

Ans. (A) More effective in carcinoma cervix (D) Better than teletherapy for large & bulky tumour (E) Less damage to normal tissue

- Advantage of brachytherapy is that it delivers high radiation dose to tumor locally with high local control.
- Damage to normal tissue is less as their is rapid fall-off of radiation around the source.
- This technique is particularly useful in treating cancers of cemix, uterus, vagina and certain H and N cancers.
- It can also be used to treat breast, brain, skin, esophageal, soft tissue, lung, bladder and prostate cancer.

219. Features of strontium 89 in comparison to phosphorus-32 -

a) Longer t-1/2

b) Deeper penetration

c) Emits beta rays while P-32 emits alpha rays

d) Lesser toxicity

e) None

Correct Answer - A:D

Ans. (A) Longer t-1/2 (D) Lesser toxicity

[ReJ: Review of Radiology by Sumer Sethi Ch/e p. 184; Harrison l9h/e p. 363e-3; Bonica's Management of Puin by Scott Fishman p' 655]

- Half-life of P-32 is 14.3 days and strontium-89 is 50.5 days.
- Soft tissue penetration of P-32 is 8 mm and strontium-89 is 2.4 mm.
- Both P-32 and Strontium-89 emit B-rays.
- P-32 is moderately toxic where as strontium has low toxicity.

220. Maximum score in mini mental status examination is -

a) 10

b) 15

c) 20

d) 25

e) 30

Correct Answer - E

Ans. E. 30

[Ref: Kaplan and Sadock p. 2537]

- The mini-mental status examination offers a quick and simple way to quantify cognitive function and steenfor cognitive Impairment.
- It helps to confirm the presence of cognitive impairment and to follow the progression of dementia.
- It tests individual's orientation, attention, calculation, recall, language, and motor skills. Each section of the test involves a related series of questions or commands.
- **The indIVIdual receives one point for each correct answer. The individual can receive a maximum score of 30 points, i.e., MMSE is 30 point programme to evaluate cognitive function.**

221. True about generalized anxiety disorder ?

a) Insomnia

b) Clear history of past traumatic event

c) Excessive anxiety and worry

d) Benzodiazepines is drugs of choice

e) None

Correct Answer - A:C:D

Ans. (A) Insomnia (C) Excessive anxiety and worry
(D) Benzodiazepines is drugs of choice

[Ref: Niraj Ahuja p. 90-91; Kaplan and Sadock 11'h/e p. 409]

Generalized anxiety disorder:

- Characterized by excessive anxiety and worry which are persistent & generalized and not restricted to any specific situation or object.
- Excessive anxiety worry occur for at least 6 months.

Worry is difficult to control and is associated with at least three symptoms from the following:

- Selflessness or feeling keyed up
- Difficulty concentrating
- Muscle tension
- Easily fatigued
- Irritability
- Sleep disturbance
- Anxiety and worry cause significant distress and impairment is social, occupational, or other daily functioning.

Treatment:

- Benzodiazepine - Drug of choice.

222. Essential criteria for major depression are all except -

a) Delusion of grandeur

b) Loss of pleasure

c) Insomnia

d) Hypersomnia

e) Anorexia

Correct Answer - A

Ans. A. Delusion of grandeur

[Ref Niraj Ahaia p. 7l-72; Keplarn and Sadsck p. 357]

Diagnostic criteria for major depression

- 5 or more of the following symptoms should be present most of the day for at least 2 weeks: -
- Depressed mood
- Loss of interest or pleasure in all activities.
- Decrease/increase appetite or loss/gain of weight.
- Insomnia or hypersomnia (Increased or decreased sleep).
- Psychomotor retardation or agitation (decreased or increased psychomotor activity).
- Fatigue or loss of energy (weakness or lethargy).
- Feelings of worthlessness or excessive guilt.
- Diminished concentration
- Recurrent thoughts of death or recurrent suicidal ideation or suicidal attempt.

223. True match of EEG pattern in sleep EEG -

a) K-complex is seen in stage I of NREM sleep

b) Waking state show alpha wave

c) Alpha-wave occur in onset of sleep

d) Theta wave is the predominant wave in stage I of NREM sleep

e) Stage III-NREM sleep shows high amplitude slow waves

Correct Answer - B:D:E

Ans. (B) Waking state show alpha wave (D) Theta wave is the predominant wave in stage I of NREM sleep (E) Stage III-NREM sleep shows high amplitude slow waves

[Ref Niraj Ahaja p. 132-34; Kaplan & Sedaock p. 534]

- Full awake and alert state = Beta rhythm
- Awake, eyes closed and mind wandering but with less attentiveness = Alpha - rhythm
- Stage 1 NREM = Theta rhythm
- Stage 2 NREM = Sleep spindles, K complex
- Stage 3 &4 NREM (Deep sleep) = Delta rhythm
- REM sleep = Beta rhythm and sometimes also reappearance of alpha rhythm-.

224. Naltrexone is/are used for -

a) Alcohol dependence

b) Opioid dependence

c) Cocaine dependence

d) Cannabis toxicity

e) None

Correct Answer - A:B:C

Ans. (A) Alcohol dependence (B) Opioid dependence (C) Cocaine dependence

[Ref: Katzung p. 56-t; Nirui Ahuia 7h/e p. 42, 44, 132; Pharmacology by Satoskar p. 165]

Naltrexone:

- Antagonist on all opioid receptors)
- More potent than naloxone.
- Given orally.
- Used as a maintenance drug for opioid addicts - opioid blockade therapy of postaddict.
- Used to decrease craving in chronic alcoholism.

225. Which of the following is/are feature(s) of nicotine withdrawal -

a) Weight loss

b) Irritability

c) Impaired concentration

d) Anxiety

e) Insomnia

Correct Answer - B:C:D:E

Ans. (B) Irritability (C) Impaired concentration (D) Anxiety (E) Insomnia

Diagnostic criteria{ia of nicotine withdrawal:

- Four or more of the following signs should be there within 24 hours of withdrawal
- Dysphoria or depressed mood
- Anxiety
- Decreased heart rate (bradycardia)
- Insomnia
- Difficulty concentrating
- Increased aPPetite or weight gain
- Irritability, frustration or anger
- Restlessness.

invalid question id