1.

Following cells are part of innate immunity?

a) B-cells

b) T-cells

c) NK-cells

d) Macrophages

e) Dendritic cells

Correct Answer - C:D:E

Answer- C, D, E, NK-cells, Macrophages, Dendritic cells

Important components of innate immunity are :-

1. Cells : Phagocytic cells (macrophages, neutrophils), dendritic cells, NK cells, eosinophils, mast cells, basophils, epithelial cells (forming epithelial barrier).
2. Complement component antimicrobial peptides
3. Pattern recognition receptors (PRn)

There are two types of PRR :

1. Soluble PRR (Mannose recePtors, C-reactive protein):
2. Surface PRR (Scavenger receptors on macrophages, Toll-like receptors).

2. Which of the following are type 3 hypersensitivity reactions?

a) Good Pasteur syndrome

b) Serum sickness

c) Arthus reaction

d) Asthma

e) Rheumatoid arthritis

Correct Answer - B
Answer- B. Serum sickness
Local-Arthus reaction

- Systemic-serum sickness
- Schick test
- Polyarteritis nodosa (PAN)
- Rheumatoid arthritis
- SLE
- Acute viral hepatitis
- Penicillamine toxicity
- Hyperacute graft rejection
- Type 2 lepra reaction (ENL)
- Hypersensitivity pneumonitis
- Infective endocarditis
- Henoch schonlein purpura
- Glomerulonephritis

3. True regarding Down syndrome is?

a) Increased paternal age is a risk factor

b) Karyotyping is not needed in all patients

c) > 85% of affected patients have 1 more chromosome 21

d) Increased nuchal translucency

e) Associated with early onset of Alzheimer's disease

Correct Answer - B

Answer- B. Karyotyping is not needed in all patients

- Down's syndrome is the most common chromosomal disorder and most common congenital cause of mental retardation (2nd
- most common genetic cause of mental retardation is Fragile -X sydrome).
- Trisomy 21- There is an extra chromosome 21 which is due to meiotic nondisjunction in ovum.
- The most important risk factor is advanced maternal age (> 35 Years).
- Antenatal Screening for Down syndrome

Following methods are used :-

1. Triple test It includes (i) Unconjugated estrogen (estriol): decreased; (ii) Maternal serum alphafeto protein (MSAFP) :decreased; and (iii) hCG: increased
2. New markers: These are (i) Increased inhibin A in maternal blood; and (ii) Decreased PAPA (pregnancy associated plasma protein).
3. USG: It shows : (i) Increased nuchal translucency (increased nuchal fold thickness); (ii) Ductus venous flow reversed; and (iii) Nasal bone hypoplasia.

4. A 14 year old boy presented with hereditary spherocytosis. Which of the following indices is/are increased?

a) LDH

b) MCHC

c) MCV

d) Urine urobilinogen

e) Haptoglobin

Correct Answer - A:B:D

Answer- A, B, D LDH, MCHC, Urine urobilinogen

- MCV decreased
- MCHC increased
- LDH increased

5. As compared to iron deficiency anemia, which of the following is decreased in anemia of chronic disease?

a) Endogenous bone marrow iron stores

b) Serum ferritin

c) Transferrin saturation

d) TIBC

e) MCV

Correct Answer - D

Answer- D. TIBC

- MCV/MCH- Decreased or normal
- Serum iron- Decreased
- TIBC- Decreased, normal
- Transferrin saturation- Decreased
- Serum ferritin- Normal or increased

6. Antibody which is/are specific for SLE?

a) ANA

b) Anti-ds DNA

c) Anti-Sm

d) Anti-histone

e) Anti-RNP

Correct Answer - B:C
Answer- B, C Anti-ds DNA, and Anti-Sm

- These are the most specific antibodies for SLE.

7. Microcytosis can be seen in deficiency of?

a) Iron

b) Folic acid

c) Vitamin B12

d) Vitamin C

e) Vitamin B6

Correct Answer - A:D:E

Answer- A, D, E, Iron, Vitamin C, Vitamin B6

Seen in-

1. Iron deficiency anemia (most common cause of anemia in general and of microcytic anemia in particular)
2. Thalassemia trait
3. Other hemoglobinopathies such as hemoglobin C syndrome & hemoglobin S syndrome
4. Chronic inflammation
5. Anemia of chronic disease
6. Siderobastic anemia
7. Deficiencies - Pyridoxin (Vit 86), vitamin C and copper

8. Blood tests done to see liver functions include?

a) Bilirubin

b) Uric acid

c) Alanine transaminase

d) Urea

e) Albumin

Correct Answer - A
Answer- A. Bilirubin
1. Aspartate aminotransferase/ SGOT
2. Alanine transaminase/ SGPT
3. Alkaline phosphatase
4. Gamma- Glutamyltransferase
5. Conjugated bilirubin
6. Unconjated bilirubin
7. Albumin

9. Anaplasia is malignant tumor may lead to?

a) Change in nuclear size

b) Loss of cell polarity

c) Metaplasia

d) Increased mitosis

e) Malignant transformation

Correct Answer - A:B:D:E

Answer- A, B, D, E, Change in nuclear size, Loss of cell polarity, Increased mitosis, Malignant transformation

Anaplastic cells show following features :-

1. Loss of polarity
2. Increased nuclear cytoplasmic size ratio
3. Increased number of mitosis which is atypical
4. Hyperchromatosia
5. Pleomorphbm

10. During inflammation, mediators involved in adhesion and movement include?

a) Compliment 5a

b) Leukotriene B4

c) Integrins

d) IL-8

e) L-selectin

Correct Answer - C:E

Answer- C & E, Integrins, L-selectin

Adhesion molecules	**Cells**	**Ligand on endothelial cells**	**Extravasation stage**
L-selection (CD62L)	Naive T lymphocytes,other leukocytes	GlyCAM-1, CD34, MadCAM-1	Tethering/Rolling
PSGL-1	Neutrophils	E-selection (CD26E), P-Selectin (CD62P),	Tethering/Rolling
LFA-1 (β2 Integrin CD11A/CD18)	Activated T lymphocytes,other leukocytes, other leukocytes	ICAM-1 (CD54), ICAM-2 (CD102)	Tight adhesion
VLA-4 (β1 Inegrin,	Activated T leukocytes monocytes,	VCAM-1(CD106),	Tight adhesion

CD49d/CD28)	neutrophils, eosiophils, basophils	Fibronection	
Mac-1 (CD11b/CD18)	Neutrophils, Monocytes, Macrophages	ICAM-1,iC3b, fibronection	Tight adhesion
LPAM-1 (β7 integrin)	Effector T lymphocytes	VCAM-1 MAdCAM-1 fibronection	adhesion

11. Causes of unconjugated hyperbilirubinemia include?

a) Sepsis

b) Criggler-Najar syndrome

c) Rotor syndrome

d) Gilbert syndrome

e) Intravascular hemolysis

Correct Answer - A:B:D:E

Answer- A, B, D, E, Sepsis, Criggler-Najar syndrome, Gilbert syndrome, Intravascular hemolysis

Unconjugated hyperbilirubinemia:-

- Increased production of bilirubin from hemoglobin, So that the capacity of liver to conjugate bilirubin is overwhelmed by increased production, e.g.
- Hemolytic anemia (both intravascular and extamascular)s Hereditary sphnocytosis, G6PD defciency.
2. Inefrective erythropoiesis- Thalassemia, Pernicious anemia.
3. Reduced hepatic uptake of bilirubin from bilirubin - albumin complex > Drugs,
4. Infections:- Sepsis, UTI
5. Impaired hepatic conjugation.

12. Major histocompatibility complexes are found on which cells?

a) Dendritic cells

b) Basophils

c) Eosinophils

d) T cells

e) RBCs

Correct Answer - A:B:C:D

Answer- A, B, C, D, Dendritic cells, Basophils, Eosinophils, T cells

HLA complex consists of three separate clusters of genes :-

1) Class I (MHC-I)

- Important cells with MHC-I (HLA-I) on surface are B-cells, T-cell, macrophages /monocytes, neutrophils, langerhans cells, dendritic cells, platelets (thrombocytes), epithelial cells of thymus and hepatocytes. MHC class I present antigen to cytotoxic CD-8 T cells.

2) Class II (MHC-II)

- It comprises 'D' region (HLA-DR,HLA-DQ, HLADP).It is found only on the cells of immune system, i.e.T-cells,B-cells,langerhans cells, dendritic cells, and macrophages.

3) Class III (MHC-III)

- Tumor necrosis factor- alpha and beta (TNF-alpha and beta).

13. Which of the following is NOT TRUE about mutation of p53?

a) Cell will continue to multiply

b) Cancer formation

c) Cell cycle will be arrested

d) DNA repair

e) All of the above

Correct Answer - C:D

Answer- C & D, Cell cycle will be arrested, DNA repair

- p53 is a tumor suppressor gene.
- The major functional activities of the p53 protein are cell cycle arrest and initiation of apoptosis in response to DNA damage.

p53 causes-

1. Cell cycle arrest- there is arrest of cell cycle late in G1 phase. This allows time for DNA repair.
2. DNA repair- GADD 45 encodes a protein that is involved in DNA repair.

- p53 induces apoptosis.
- Mutation in p53 leads to loss of above protective mechanisms i,e. cell cycle arrest & DNA repair. It will lead to unarrested cell multiplication and finally carcinogenesis.
- Non-mutated (wild type) p53 reduces the chances of cancer.

14. 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

15. Psammona bodies is/are seen in -

a) Medullary ca of thyroid

b) Ependymoma

c) Papillary ca of thyroid

d) Follicular ca of thyroid

e) Meningioma

Correct Answer - C:E

Answer- C, E, Papillary ca of thyroid, Meningioma

- A psammoma body is a round collection of calcium, seen microscopically. The term is derived from the Greek word psammos meaning "sand." Psammoma bodies are commonly seen in certain tumors such as:
- Papillary thyroid carcinoma
- Papillary renal cell carcinoma
- Serous papillary ovarian adenocarcinoma (cystadenocarcinoma)
- Endometrial adenocarcinomas (Papillary serous carcinoma – 3%-4%)
- Meningioma
- Mesothelioma
- Psammoma bodies usually have a laminar appearance.

16. Wound healing is affected by -

a) Age

b) Nutrition

c) Dryness of wound

d) Drugs

e) Temperature

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

Answer- A, B, C, D, E, Age, Nutrition, Dryness of wound, Drugs, Temperature

- Intrinsic factor
- Health status eg: diabetes
- Age tactors
- Body buiJd
- Nutritional status (Drotein deficiencv.
- Vitamin C deficiency)
- Inadequate blood supply

Extrinsic factor-

1. Temperature
2. Desiccation and maceration
3. Infection (single most important factor)
4. Chemical stress
5. Medications eg; corticosteroids

17. All are major criteria for rheumatic fever except:

a) Pancarditis

b) Chorea

c) Arthritis

d) Subcutaneous nodules

e) Fever

Correct Answer - E
Answer- E. Fever

- Chorea, Arthritis and Carditis are major criteria for diagnosis of Rheumatic fever Fever is a minor criteria
- Erythema Marginatum is a major criteria and not Erythema nodosum.

18. Increase PT is seen with -

a) Warfarin administration

b) Factor V deficiency

c) Factor VIII deficiency

d) Factor IX deficiency

e) Vit K deficiency

Correct Answer - A:B:E

Answer- A, B, E, Warfarin administration, Factor V deficiency, Vit K deficiency

1. Bleeding time- Prolongation generally indicates the defect in platelet number or function.
2. Partial thromboplastin time (PTT)- A prolonged PTT V, VIII (factor VIIIc, Von wille brand factor, IX. X, XI, XII, prothrombin or fibrinogen.
3. Prothrombin time(PT)- PT can results from deficiency of factor V, VII, X, prothrombin or fibrinogen V, VII, X, prothrombin or fibrinogen.
4. Thrombin time- elevated in fibrinogen deficiency.
5. Vitamin K deficiency also cause prolongation of both PT and aPTT as it inhibits factor II, VII, IX and X.

19. True in sickle cell anemia -

a) Splenomegaly

b) Microcytosis

c) Microcardia

d) Autosplenectomy

e) Gamma gandy bodies

Correct Answer - A:D:E

Answer- A, D, E, Splenomegaly, Autosplenectomy, Gamma gandy bodies

Chronic hemolysis

Vasoocclusive symptoms

.. Painful bone crisis

2. Hand-foot syndrome → Dactylitis of bones of hands/feet.

3. Autosplenectomy

4. Acute painful enlargement of spleen

5. There maybe cardiomegaly and leukocytosis.

5. Gamma Gandy bodies

- There is no microcytosis in sickle cell disease.

20. Microscopy which can be performed with minimum optical illumination -

a) Dark field

b) Bright field

c) Phase contrast

d) Confocal

e) None

Correct Answer - A:D

Answer- A & D, Dark field, Confocal

- The light has to be reduced while using dark field & phase contrast microscope, other microscopes use full illumination.

Dark field microscopy-

- Uses a carefirlly aligned light source to minimize the quantity of directly transmitted light entering the image plane, collecting only the light scattered by the sample.

Confocal microscopy/confocal laser scanning microscopy/ laser confocal scanning microscopy-

- Uses a scanning point of light and a pinhole to prevent out of focus light from reaching the detector.

21. Acanthocytes are seen in?

a) Abetalipoproteinemia

b) Severe liver disease

c) Patients with Macleod blood group

d) SLE

e) Hyperprolactinemia

Correct Answer - A:B:C

Answer- A, B, C, Abetalipoproteinemia, Severe liver disease, Patients with Macleod blood group

- Acanthocytes or spur cells, are abnormal erythrocftes which are spiculated with a few spiny or thorny projections of cytoplasm of varying size and surface distribution.
- The most frequent and most significant conditions with acanthocytosis include abetalipoproteinemia.
- McLeod red cell Phenotype.

22. Features of chronic myelogenous leukemia (CML)-

a) Bone marrow biopsy is necessary for diagnosis

b) Presence of BCR-ABL gene which directs the synthesis of BCR-ABL tyrosine kinase

c) Dasatinib is used in imatinib resistant cases

d) Generalized painful lymphadenopathy is presenting feature in most cases

e) Myeloblasts usually constitute more than 10% of all white cells in chronic phase

Correct Answer - A:B:C

Answer- A, B, C, Bone marrow biopsy is necessary for diagnosis, (B) Presence of BCR-ABL gene which directs the synthesis of BCR-ABL tyrosine kinase (C) Dasatinib is used in imatinib resistant cases

- Splenomegaly is present in 90%
- Imatinib, dasatinib and nilotinib specifically inhibit BCR ABL tyrosine kinase activity and reduce the uncontrolled proliferation of white cells.
- The disease is driven by the BCR-ABL1 chimeric gene product, a constitutively active tyrosine kinase.
- Common manifestations are of anemia and splenomegaly, lymphadenopathy, and extramedullary disease (skin or subcutaneous lesions)
- The bone marrow is hypercellular with marked myeloid hyperplasia and a high myeloid-to-erythroid ratio of 15-20: 1.

23. True about Cystic fibrosis-

a) Occurs due CFTR gene mutation on chromosome 7

b) Meconium ileus is present in >90% cases

c) CFTR gene can be detected antenately

d) Poor body growth

e) All of the above

Correct Answer - A:C:D

Answer- A, C, D, Occurs due CFTR gene mutation on chromosome 7 (C) CFTR gene can be detected antenately (D)Poor body growth

- The primary defect in cystic fibrosis results from abnormal function of an epitheltal chloride channel protein encoded by the cystic fibrosis transmembrane conductance regulator (CFTR) gene on chromosome 7.
- Contents of the intestinal lumen are difficult to excrete which results in meconium ileus.
- Sequencing the CFTR gene is the gold standard for diagnosis of cystic fibrosis Poor body growth

24. True about caspases -

a) Caspases initiate apoptosis by extrinsic and intrinsic pathway

b) Caspases are protease enzyme

c) Caspases are receptor

d) Caspases inhibit apoptosis

e) Causes non enzymatic degradation of critical cellular components

Correct Answer - A:B

Answer- A, B, Caspases initiate apoptosis by extrinsic and intrinsic pathway (B) Caspases are protease enzyme

- Apoptosis results from the activation of enzymes called caspases.
- The process of apoptosis may be divided into an initiation phase (intrinsic pathway) and execution (extrinsic pathway).

Two distinct pathways converge on caspase activation:

- The mitochondrial pathway and the death receptor pathway
- Caspases are a famiy of endoproteases.
- The activation of these enzyme is tightly controlled by their production as inactive zymogens that gain catalytic activity following signaling events promoting their aggregation into dimers or macromolecular complexes"

25. True about minimal change disease -

a) Hypertension is commonly present

b) Most common cause of nephrotic syndrome in adults

c) High dose steroids results in remission in most cases

d) Commonly progress to chronic renal failure

e) Reversible loss of podocyte function

Correct Answer - C:E

Answer- (C) High dose steroids results in remission in most cases (E) Reversible loss of podocyte function

Minimal change disease:

- Also k/a lipoid nephrosa, foot process disease & Nil deposit disease
- The disease sometimes follows a respiratory infection or routine prophylactic immunization'
- The onset may be preceded by an upper respiratory infection, atopic allergy or immunisation.
- The disease characteristically respond to steroid therapy
- The benign disorder is characterized by diffuse effacement of foot processes of visceral epithelial cell (podocytes).
- most frequent cause of nephrotic syndrome in children
- The visceral epithelial changes are completely reversible afrer corticosteroid therapy, concomitant with remission of the proteinuria.
- There is commonly no hypertension or hematuria.
- The appearance of acute renal failure in adults.

26. Feature(s) of Adult polycystic kidney disease is/are:

a) Renal enlargement

b) Small kidney

c) Spider leg deformity on intravenous urography

d) Ultrasound shows multiple cysts

e) All of the above

Correct Answer - A:C:D

Answer- A, C, D, Renal enlargement (C) Spider leg deformity on intravenous urography (D) Ultrasound shows multiple cysts

- ADPKD is characterized by the progressive bilateral formation of renal crisis.
- Inhieritence- autosomal dominant
- Characterized by multiple expanding cysts of both kidneys.
- In gross appearance, the kidneys are bilaterally enlarged.
- The pain may result from renal cyst infection, hemorrhage, or nephrolithiasis.
- 'Intravenous urography polycystic kidney disease: The spider legs, deformity of the calyces.

27. Which is/are caused by protein misfolding:

a) Creutzfeldt-Jakob disease

b) Bovine spongiform encephalopathy

c) Huntington disease

d) Alzheimer disease

e) Parkinson disease

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

Answer- A, B, C, D, E, Creutzfeldt-Jakob disease (B) Bovine spongiform encephalopathy (C) Huntington disease (D) Alzheimer disease (E) Parkinson disease

- The proteins fail to fold into their normal configuratory in this misfolded state, the proteins can become toxic in some way (a gain of toxic function) or they can lose their normal function which is known as protein misfolding disease.
- Such diseases as Creutzfeldt- Jakob disease, Alzheimer's disease, Parkinson's disease, prion disease, amyloidosis, Bovine spongiform encephalopathy, Huntington disease.

28. True about Creutzfeldt-Jakob Disease :

a) Gliosis in thalamus

b) Spongiform swelling in cerebral cortex

c) Brain atrophy in late stage

d) Slow and irregular background rhythm on EEG

e) None

Correct Answer - B:C:D

Answer- B, C, D, Spongiform swelling in cerebral cortex (C) Brain atrophy in late stage (D) Slow and irregular background rhythm on EEG

- CJD is a rare disorder that manifests clinically as a rapidly progressive dementia.
- The progression of the dementia in CJD is usually so rapid that there is little if any grossly evident brain atrophy.
- Microscopically, the hallmark is spongiform change of the cerebral cortex.
- In advanced cases there is severe neuronal loss, reactive gliosis.
- EEG abnormaltdes are present in nearly all patients, consisting of a slow and irregular background rhythm with periodic complex discharges.

29. Hereditary non- polyposis colorectal cancer (HNPCC) is/ are commonly associated with-

a) Endometrial cancer

b) Cervical cancer

c) Ovarian cancer

d) Breast cancer

e) Thyroid cancer

Correct Answer - A:C

Answer- A, C, Endometrial cancer (C) Ovarian cancer

- Hereditary non- polyposis colorectal cancer (HNPCC)-
- Malignancies- Colonic, endometrial, ovarian, pancreatic, gastric.
- Inherictance- autosomal dominant
- Gene- AD MSH2, MLH1, MSH6, PMS1, PMS2

30. Features of Non bacterial thrombotic endocarditis (NBTE)-

a) Common in SLE

b) Present on undersurface of valve

c) Vegetative growth is large and loosely attached to valve

d) May occur after post-cardiac catheterization

e) Source of systemic emboli

Correct Answer - B:D:E

Answer- B, D, E, Present on undersurface of valve (D) May occur after post-cardiac catheterization (E) Source of systemic emboli

- These verrucae are typically small, single or multiple, brownish and occur along the line of closure of the leaflet.
- Vegetatian of NBTE is small and loosely attached to the underlying valve.
- Source of systemic emboli that produce significant infarcts in the brain, heart, spleen and kidneys.
- It frequently occurs with deep venous thrombosis, pulmonary emboli.

31. True about Alzheirner disease:

a) Most common cause of dementia in elderly

b) Unusal before 45 years of age

c) Plaques consists of tau protein

d) May have family history

e) Short term memory is affected less than long-term memory

Correct Answer - A:B:D

Answer- A, B, D, Most common cause of dementia in elderly (B) Unusal before 45 years of age (D) May have family history

- Alzheimer's disease (AD) is a slowly progressive disease of the brain that is characterized by impairment of memory and eventually by disturbances in reasoning, planning, language, and perception.
- Alzheimer's disease is Common in 5th and 6th decade.
- Trisomy 21 is associated with alzheimer's dementia.
- Plaque containing beta-amyloid peptide, and neurofibrillary tangles containing tau protein occurs in neocortex.
- The causes include genetic, environmental, and lifestyle factors.
- Dementia of Alzheimer's type is associated with Depressive symptoms, Delusions ,Apraxia and aphasia.
- Recent memory loss (short term memory loss) is feature of Alzheimer's disease.

32. Negri bodies in animal can be best seen in:

a) Hippo campus

b) Basal ganglia

c) Cerebral cortex

d) Cerebellum

e) Thalamus

Correct Answer - A:D

Answer- A, D, Hippo campus (D) Cerebellum

- They are most prominent in pyramidal cells of the hippocampus and Purkinje cells of cerebellum but have been seen in nerve cells throughout the brain and spinal cord.

33. True about p53 -

a) Has tyrosine kinase activity

b) Has pro-apoptotic activity

c) Tumour suppressor gene

d) Has anti-apoptotic activity

e) None

Correct Answer - A:B:C

Answer- A, B, C, Has tyrosine kinase activity (B) Has pro-apoptotic activity (C) Tumour suppressor gene

- p 53 is a tumor suppressor gene and it is a proapoptotic factor, i.e. it promotes apoptosis if repair of DNA damage is unsuccessful at G1 arrest.
- The protein kinases that are known to target this transcriptional activation domain of p53.

34. True about Takayasu syndrome:

a) Involves small and Medium sized vessels

b) Shares many clinical features of giant cell arteritis if involves aorta

c) More common in male than female

d) Granulomatous vasculitis

e) Also called pulseless disease

Correct Answer - B:C:E

Answer- B, D, E, Shares many clinical features of giant cell arteritis if involves aorta (D) Granulomatous vasculitis (E) Also called pulseless disease

- "Giant cell arteritis (GCA) is a granulomatous arteritis that predominantly affects medium-sized arteries in the head and neck.
- It predominantly affects the aorta.
- Takayasu arteritis (Pulseless dlsease): The disease affects chiefly young women.
- Takayasu arteritis is a granulomatous vasculitis of medium sized and larger arteries characterized principally by ocular disturbances and marked weakening of the pulses in the upper extremities.

35. Correct match of stain with tissue is/ are-

a) Perls' Prussian blue-iron in tissue

b) Von Kossa-collagen

c) Masson's trichrome -elastin fiber

d) PAS- glycogen

e) PAS- Acidic and neutral mucin

Correct Answer - A:D:E

Answer- A,Perls' Prussian blue-iron in tissue D,PAS-glycogen E,PAS- Acidic and neutral mucin

1. Masson's trichrome- Trichrome histology stains

- Can be used to distinguish between cellular items and extracellular items
- Can be used on connective tissue

2. Von Kossa stain- used to indicate calcium and calcium deposits

3. Periodic acid schiff (PAS)- A Mucin stain

- Used for staining glycogen
- Used to show glomeruli, basement membranes, and glycogen in the liver.

4. Perls' Prussian blue- Can be used to reveal the presence of iron in biological tissues

36. Which are inheritable malignancies:

a) Breast cancer

b) Thyroid cancer

c) Wilms tumour

d) Retinoblastoma

e) Prostate cancer

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

Answer- A, B, C, D, E, Breast cancer (B) Thyroid cancer (C) Wilms tumour (D) Retinoblastoma (E) Prostate cancer

- Breast/ovarian- Breast, ovarian, colonic, prostatic, pancreatic
- Wilm's tumour- Nephroblastoma, neuroblastoma, hepatoblastoma, rhabdomyosarcoma Retinoblastoma- Retinoblastoma, osteosarcoma
- Prostate cancer- prostate
- Cowden's syndrome- Breast, thyroid, gastrointestinal tract, pancreatic

37. True about proliferalive phase of wound healing

a) Neutrophils increases gradually

b) Macrophage increases gradually

c) Collagen type I present predominantly

d) Collagen type III present predominantly

e) Angiogenesis occurs

Correct Answer - D:E

Answer- D,Collagen type III present predominantly E,Angiogenesis occurs

- During proliferation, the wound is 'rebuilt' with new granulation tissue which is comprised of collagen and extracellular matrix and into which a new network of blood vessels develop, a process known as 'angiogenesis'.
- Maturation is the final phase and occurs once the wound has closed. This phase involves remodelling of collagen from type III to type I Cellular activity reduces and the number of blood vessels in the wounded area regress and decrease.

38. Causes of Non- megaloblastic macrocytic anameia-

a) Folate deficiency

b) Lead toxicity

c) Hypothyroidism

d) Liver disease

e) Vit B 12 deficiency

Correct Answer - C:D
Answer- C, D, Hypothyroidism (D) Liver disease
Causes include:

- Chronic alcoholism
- Liver disease
- Hypothyroidism
- Reticular fibrosis
- Blood. disorders like red-cell aplasia, aplastic anemia,myelodysplastic syndromes and myeloid leukemia
- Drugs as azathioprine
- Pregnancy

39. Glucose level in CSF is/are reduced in:

a) Bacterial meningitis

b) Fungal meningitis

c) Viral meningitis

d) Tubercular meningitis

e) Spirochetal meningitis

Correct Answer - A:B:D

Answer- A,Bacterial meningitis B,Fungal meningitis D,Tubercular meningitis

- Normal - 45- 48 mg/dL
- Bacterial meningitis- Markedly reduced (low <45)
- Fungal meningitis- Markedly reduced (low <45)
- Viral meningitis- Normal or low
- Tubercular meningitis- Reduced (low <45)
- Spirochetal meningitis- Normal

40. Which of following is not classified as Primitive neuroectodermal tumour(PNET):

a) Retinoblastoma

b) Medulloblastoma

c) Rhabdomyosarcoma

d) Ewing sarcoma

e) Carcinoid tumour

Correct Answer - A:C:D:E

Answer- A,Retinoblastoma C,Rhabdomyosarcoma D,Ewing sarcoma E,Carcinoid tumour

- Embryonal tumors or primitive neuroectodermal tumors (PNET) are the most common group of malignant CNS tumors of childhood.
- PNET group includes- medulloblastoma, supratentorial PNET, ependymoblastoma, medulloepithelioblastoma, and atypical teratoid/ rhaboid tumor (ATRT).
- Ewing's sarcoma is closely related to PNET, but not PNET.
- Recently, Ewing sarcoma and primitive neuroectodermal tumor (PNET) have been unified into a single category:
- The Ewing sarcoma family tumors (ESFT) based on shared clinical, morphologic, biochemical and molecular features

41. True statement(s) about Wilm's tumour -

a) Most commonly presents as asymptomatic abdominal mass

b) Hereditary predisposition is present in 50% cases

c) Bilateral in 25% cases

d) Classic triphasic combination of blastemal, stromal, and epithelial cell types is observed

e) Most common in children

Correct Answer - A:D:E

Answer- A, D, E, Most commonly presents as asymptomatic abdominal mass (D) Classic triphasic combination of blastemal, stromal, and epithelial cell types is observed (E) Most common in children

- It is a malignant tumour of kidney which is seen in children
- Tumour is composed of epithelial and mesothelial elements (bone, cartilage, muscle etc) so called as nephroblastoma (immature embryonic tissue)
- Wilms tumor, also known as nephroblastoma is a complex mixed embryonal neoplasm of the kidney composed ofthree elaments: blastema, epithelia, and stroma.

Clinical features-

- Common in female children (2-4 years)
- Mass in the abdomen.
- Abdominal distension due to enlarged kidney
- Rarely, Wilm’s tumour is bilateral
- Hematuria

42. 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.

43. Features of irreversible cell injury are

a) Lysosomal injury

b) Pyknosis

c) Cell membrane injury

d) Mitochondrial amorphous deposits

e) Apoptotic bodies

Correct Answer - B:C:D:E

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

Characteristic features are -

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

44. 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.

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

a) Site of the tumor

b) Stage of the tumor

c) Etiological agent

d) Age of patient

e) Gender of patient

Correct Answer - A:B:C

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

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

46. Prothrombin time is elevated in following conditions

a) Defect in factor XI

b) Fibrinogen defect

c) DIC

d) Factor VII defect

e) Von Willebrand disease

Correct Answer - B:C:D

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

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

47. True about Digeorge Syndrome -

a) B-cell deficiency

b) Defect in 3rd pharyngeal pouch

c) Hypoparathyroidism

d) Candidiasis

e) Thymic aplasia

Correct Answer - B:C:D:E

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

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

Clinical features include-

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

48. Following findings are seen in rheumatic heart disease

a) Mc Callums plaque

b) Thickening of mitral valve

c) Fibrous plaque on undersurface of aortic valve

d) Aschoff bodies in myocardium

e) None

Correct Answer - A:B:D

Answer- A,Mc Callums plaque B,Thickening of mitral valve D,Aschoff bodies in myocardium

1) Acute rheumatic carditis-

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

2) Chronic rheumatic carditis-

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

49. Increased reticulocyte count is seen in

a) Megaloblastic anemia on treatment with hematinics

b) Acute hemorrhage

c) Congenital dyserythropoietic anemia

d) Hereditary spherocytosis

e) Aplastic anemia

Correct Answer - A:B

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

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

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

a) Smoking

b) Alcoholism

c) H Pylori infection

d) Chronic atrophic gastritc

e) Partial gastrectomy

Correct Answer - A:C:D:E

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

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

51. Increased reticulocytes are seen in

a) Aplastic anemia

b) B12 deficiency on treatment with hematinics

c) Iron deficiency anemia

d) Hemolytic anemia

e) None

Correct Answer - B:D

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

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

52. 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

53. True about amyloid SSA -

a) Mutant transthyretin

b) Senile cardiac amyloidosis

c) Wild transthyretin

d) Familial polyneuropathy

e) Senile systemic amyloidosis

Correct Answer - B:C:E

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

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

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

a) TIBC

b) Serum ferritin

c) Transferring saturation

d) Transferring receptors

e) None

Correct Answer - A:D
Answer- A,TIBC D,Transferring receptors

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

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

a) Multiple myeloma

b) Dialysis associated amyloidosis

c) Systemic sclerosis

d) Sjogren's syndrome

e) Renal cell carcinoma

Correct Answer - E

Answer- E Renal cell carcinoma

1. Primary
2. Secondary (reactive)

There is deposition of AA amyloid protein-

- Renal cell carcinoma (hypernephroma), Hodgkins lynphoma.

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

a) TIBC

b) Transferring saturation

c) Serum iron levels

d) Decreased utilization of endogenous ferritin

e) All of theabove

Correct Answer - A:B:D

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

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

57. True about dystrophic calcification -

a) Raised calcium level

b) Seen in dead/degenerative tissue

c) Seen in Sarcoidosis

d) Seen in atherosclerosis

e) Seen in rheumatic fever

Correct Answer - B:D:E

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

Dystrophic calcification in dead tissues-

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

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

a) Carcinoma breast- BRCA1

b) Rhabomyosarcoma-C-KIT

c) Wilms tumor WT1

d) Retinoblastoma Rb

e) Neuroblastoma MYC

Correct Answer - A:C:D:E

Answer- (A) Carcinoma breast- BRCA1 (C) Wilms tumor WT1 (D) Retinoblastoma Rb (E) Neuroblastoma MYC

- Carcinomas of female breast and ovary- BRCA1
- Wilms tumor- WT-l
- Retinoblastomas- RB
- Gastrointestinal stromal tumors, testicular seminoma, melanoma, AML- C-KIT
- Neuroblastoma- N MYC

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

a) Klinefelters syndrome

b) Turners syndrome

c) Pataus syndrome

d) Edward syndrome

e) Cri du Chat syndrome

Correct Answer - C:D
Answer- C,Pataus syndrome D,Edward syndrome

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

60. Common metaphyseal tumors are -

a) Enchondroma

b) Osteosarcoma

c) Non ossifying fibroma

d) Osteoid osteoma

e) Osteoclastoma

Correct Answer - A:B

Answer- (A) Enchondroma (B) Osteosarcoma

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

61. 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

62. Malignancies associated with HIV are -

a) Kaposis sarcoma

b) NHL

c) Anal Carcinoma

d) Cervical Carcinoma

e) Colon Carcinom

Correct Answer - A:B:C:D

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

- Kaposi sarcoma is the most common tumor in AIDS.

Non-Hodgkin lymphomas (NHLs) in AIDS are -

1. Primary CNS lymphoma (associated with EBV)
2. Burkitt's lymphoma

- Hodgkin's disease
- Leukemia
- Multiple myeloma
- Cervical Ca
- Anal Ca

63. Which of the following combinations are true

a) Hyaline casts- normal

b) Waxy casts-chronic pyelonephritis

c) Broad casts - CRF

d) RBC casts-glomerulonephritis

e) Muddy casts-acute tubular necrosis

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

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

Hyaline casts

- These are the most common casts and consists almost entirely of Tamm-Horsfall protein

Renal tubular epithelial cell casts

- Epithelial cells are present along with cast

Waxy casts

- These are seen in chronic renal diseases

Broadcast

- These are seen in advanced renal failure

RBC casts

- There are seen in nepahritic syndrome due to glomenulonephritis

Muddy casts

- It is pathognomonic of acute tubular necrosis (ATN)

64. True regarding cast examination in urine

a) Acid is added

b) Examined at the edge of cover slip

c) Sediment is used

d) Contrifuge is not used

e) Broad cast indicates stasis of urine flow

Correct Answer - A:C:E

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

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

65. 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.

66. True about alcoholic steatosis

a) Microvesicular

b) Macrovesicular

c) Reversible

d) Mallory hyaline

e) Central hyaline sclerosis

Correct Answer - A:B:C

Answer- A,Microvesicular B,Macrovesicular C,Reversible

Hepatic steatosis (Fattyliver)

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

67. 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.

68. 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.

69. 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.

70. 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

71. 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

72. 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.

73. 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)

74. 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

75. 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.

76. 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

77. 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

78. 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.

79. 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.

80. 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

81. 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.

82. 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.

83. 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

84. 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.

85. 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

86. 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

87. Serotonin, a mediator of inflammation in our body, is secreted /released by:

a) Leukocytes

b) Endothelial cell

c) Mast cell

d) Platelet

e) Macrophage

Correct Answer - D
Answer- D. Platelet

- Serotonin :It is found in the intestinal mucosa, brain tissue & platelets.
- Release of serotonin (and histamine) from platelets is stimulated when platelets aggregate after contact with collagen, thrombin, adenosine diphosphate (ADP), and antigen-antibody complexes.

88. Which of the following marker/mutation is/are seen in papillary carcinoma of thyroid:

a) Synaptophysin

b) RET/PTC

c) P53

d) NTRK1

e) RAS

Correct Answer - B:D:E

Answer- B,RET/PTC D,NTRK1 E,RAS

- Genetic Alterations in Thyroid Neoplasia-
- RET/PTC
- BRAF
- TRK
- RAS

89. Autosomal recessive disease(s) is/are :

a) Sickle cell anaemia

b) Phenylketonuria

c) Tuberous scelerosis

d) Familial polyposis coli

e) Marfan syndrome

Correct Answer - A:B

Answer- (A) Sickle cell anaemia (B) Phenylketonuria

1. Metabolic-

- Cystic fibrosis
- Phenylketonuria
- Galactosemia
- Homocystinuria
- Wilson disease
- Hemochromatosis

2. Hematopoietic

- Sickle cell anemia
- Thalassemias

3. Endocrine

- Congenital adrenal hyperplasia

4. Skeletal

- Ehlers-Danlos syndrome

5. Nervous

- Friedreich ataxia
- Spinal muscular atrophy

90. Which of the following marker favours diagnosis of preinvasive & invasive cervical cancer:

a) Ki67

b) Oncoprotein E6

c) p16INK4, cyclin E, and Ki-67

d) Oncoprotein E8

e) None

Correct Answer - A:B:C

Answer- A,Ki67 B,Oncoprotein E6 C,p16INK4, cyclin E, and Ki-67

- The expression of E7 determines the inactivation of pRb with a consequent increase of free E2F in the cell, leading to both an increase of cyclin-dependent kinase inhibitor pl6 (p16INK4a) and aberrant proliferation (marked by increased levels of Ki-67 expression).

91. Which of the following is/are features(s) of lewy body dementia:

a) Plaque containing beta-amyloid peptide

b) Deposition of a-synuclein protein

c) Often resistant to standard treatment

d) Common in elderly

e) Risk of falling may present

Correct Answer - B:C:D:E

Answer- (B) Deposition of a-synuclein protein (C) Often resistant to standard treatment (D) Common in elderly (E) Risk of falling may present

- Alpha- synuclein containing Lewy bodies occur in the brainstem, midbrain, olfactory bulb, and neocortex.
- This is a neuro degenerative disorder clinically characterized by dementia and signs of Parkinson's disease.
- Common in elderly.
- The DLB clinical syndrome is characterized by visual hallucinations, parkinsonism, fluctuating alertness, falls.

92. True about Alzheimer's disease:

a) More common in older age

b) Impairment of the ability to remember new information

c) Mainly affects long term memory

d) General cognitive behavior impaired in prodromal phase

e) Atrophy of frontal & parietal lobe

Correct Answer - A:B:D:E

Answer- (A) More common in older age (B) Impairment of the ability to remember new information (D) General cognitive behavior impaired in prodromal phase (E) Atrophy of frontal & parietal lobe

- Alzheimer's disease (AD) is a slowly progressive disease of the brain that is characterized by impairment of memory.
- Alzheimer's disease is Common in 5th and 6th decade.

Early Stage-

- This is considered as a mild/early stage and the duration period is 2-4 years.
- Frequent recent memory loss.
- Writing and using objects become difficult and depression and apathy can occur.

Second stage-

- This is considered as a middle/moderate stage and the duration is 2-10 years.
- Dementia of Alzheimer's type is associated with Depressive symptoms, Delusions ,Apraxia and aphasia.
- Pervasive and persistent memory loss impacts life across settings.

Moderate stage-

- Increased memory loss and confusion.

Last stage-

- This is considered as the severe stage and the duration is 1-3 years.
- Extreme problems with mood, behavioral problems, hallucinations, and delirium.

93. RS cell having same immunophenotyping are present in which subtypes of Hodgkin's lymphoma:

a) Nodular sclerosis

b) Lymphocyte predominant

c) Lymphocyte rich

d) Mixed cellularity

e) Lymphocyte depletion

Correct Answer - A:C:D:E

Answer- (A) Nodular sclerosis (C) Lymphocyte rich (D) Mixed cellularity (E) Lymphocyte depletion

- In the first four subtypes- nodular sclerosis, mixed cellularity, lymphocyte-rich, and lymphocyte cells.

94. True about surgical jaundice:

a) Increase of serum bilirubin

b) Increase acid phosphatase

c) Increase alkaline phosphatase

d) Urine bilirubin is absent

e) Stool sterocobilinogen absent

Correct Answer - A:C:E

Answer- A,Increase of serum bilirubin C,Increase alkaline phosphatase E,Stool sterocobilinogen absent

Obstructive jaundice-

1. Biluribin
Direct & Indirect- increased
2. Urine bilirubin- increased
3. Serum albumin- generally unchanged
4. Alkaline phosphatase- Increased
5. Sterocobilinogen- absent

95. True about Lyonisation of X chromosome:

a) Inactivation of X chromosome only in somatic cell

b) Inactivation of X chromosome only in germ cell

c) Inactivation of X chromosome in somatic & germ cell both

d) Maximun number of Barr body is equal to X chromosome

e) All

Correct Answer - A

Answer- A. Inactivation of X chromosome only in somatic cell

- In female, one of two X-chromosome (either paternal or maternal) is inactivated during embryogenesis as stated in Lyon hypothesis.
- This inactivation is passed to all the somatic cell while the germ cells in the female remain unaffected.

96. Two most common cancer in Indian woman is:

a) Carcinoma breast

b) Carcinoma cervix

c) Carcinoma colon

d) Carcinoma stomach

e) Carcinoma lung

Correct Answer - A:B

Answer- (A) Carcinoma breast (B) Carcinoma cervix

- In women, cancer breast, cervix uteri, colorectum, ovary, lip & oral cavity.

97. Prognostic factors for carcinoma esophagus is/are:

a) Depth of invasion

b) Lymph node status

c) Tumour grading

d) Stage of the disease

e) All

Correct Answer - E

Answer- E, All

- Stage The most reliable prognostic facfor for esophageal cancer is the stage of the tumour at the time of diagnosis.
- Tumour size
- Lymph nodes status
- Cancer has spread to distant organs
- Cancer that remains after surgery
- Tumour grade

98. True about Dentigerous cyst:

a) Arises in relation to unerupted teeth

b) It most commonly encroaches maxillary antrum

c) Mandibular third molar is common site

d) Common in mandible

e) All

Correct Answer - A:C:D

Answer- A,Arises in relation to unerupted teeth C,Mandibular third molar is common site D,Common in mandible

- Common in lower jaw (mandible) in women 30-40 years.
- It occurs in relation to unerupted, permanent, molar tooth, most commonly the upper or lower third molar.

99. Which of the following is paraganglioma:

a) Adrenal Pheochromocytoma

b) Extra-adrenal Pheochromocytoma

c) Carotid body tumour

d) Carcinoid tumour

e) Glomus tympanicum

Correct Answer - B:C:E

Answer- (B) Extra-adrenal Pheochromocytoma (C) Carotid body tumour (E) Glomus tympanicum

- Pheochromocytorna is a chromaffin-cell neoplasm that can arise an adrenal (adrenal medulla) or extraadrenal tumor.
- Extraadrenal pheochromocytoma is also referred to as paraganglioma.
- The carotid body tumor is a prototype of a parasympathetic paraganglioma.
- Glomus tympanicum: Most common tumour in middle ear.

100. Which of the following statement(s) is/are correct except:

a) Increased PT in extrinsic pathways

b) Increased aPTT in instrinsic pathways

c) If platelet count is > 1.5 lac/microL, then normal homeo-stasis present

d) BT is decreased in platelet abnormality

e) None

Correct Answer - D

Aswer- D. BT is decreased in platelet abnormality

- Hemostasis is spontaneous arrest of bleeding by physiological Process.
- Prothrombin time (PT):
- This assay tests the extrinsic and common coagulation pathways.
- Partial thromboplastin time (PTT):
- This assay tests the intrinsic and common clotting pathway.
- Prolongation generally indicates a defect in platelet numbers or function.

101. Feature(s) of XIII factor deficiency is/are:

a) Delayed wound closure

b) Clot solubility tests are abnormal

c) TaPTT

d) TPT

e) TBT

Correct Answer - A:B

Answer- A,Delayed wound closure B,Clot solubility tests are abnormal

- It characteristically leads to delayed bleeding that occurs hours to days after a hemostatic challenge.
- Clot solubility tests are abnormal.

102. 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.

103. True about miliary tuberculosis:

a) Occur primarily due to hematogenous spread

b) Miliary lesion is generally of size 1-2 mm

c) Diffuse bilateral crepitation is always present

d) Onset is generally acute

e) Sputum smear microscopy is negative in 80% of cases

Correct Answer - A:B:E

Answer- (A) Occur primarily due to hematogenous spread (B) Miliary lesion is generally of size 1-2 mm (E) Sputum smear microscopy is negative in 80% of cases

- Miliary TB is due to hematogenous spread of tubercle bacilli.
- Blood-borne dissemination gives rise to miliary TB.
- The lesions are usually yellowish granulomas l-2 mm in diameter that resemble millet seeds (microscopic or small, visible).

Clinical features-

- Fever, night sweats, anorexio, weaknas, and weight loss are presenting symptoms in the majority of cases.
- Patients have a cough and other respiratory symptoms.
- Hepatomegaly, splenomegaly, and lymphadenopathy.
- Eye examination- choroidal tubercles, which are pathognomonic of miliary TB

Investigations-

- Chest radiography reveals a miliary reticulonodular pattern.
- Sputum smear microscopy is negative in 80% of cases.
- TST (Tuberculin skin test) may be negative.
- Bronchoalveolar lavage and transbronchial biopsy are more likely to provide bacteriologic confirmation.

- Ausculution is frequently normal but in more advanced disease, widespread crackles are evident

Treatment-

- Regimens that are effective for treating pulmonary TB are also effective for treating extrapulmonary disease.

104. Which of the following cancer spread primarily by hematogenous route:

a) Papillary carcinoma thyroid

b) Renal cell carcinoma

c) Pheochromocytoma

d) Glioblastoma multiforme

e) Follicular carcinoma of thyroid

Correct Answer - B:C:E

Answer- (B) Renal cell carcinoma (C) Pheochromocytoma (E) Follicular carcinoma of thyroid

- The most common locations of metastasis are the lungs and bones.
- Renal cell carcinoma: Tumour cell line the blood vessel which are responsible for early blood spreadfrom RCC
- Papillary carcinoma thyroid: Foci of lymphatic invasion by tumor are often Present, but no blood vessel involvement
- Pheochromocytomas is the presence of metastases.
- Follicular carcinoma of thyroid: Blood borne metastases are more common.

105. Presentation of Pierre-Robin syndrome includes:

a) Retrognathia

b) Low set ear

c) Prominent forehead

d) Isolated cleft palate

e) Glossoptosis

Correct Answer - A:D:E

Answer- (A) Retrognathia (D) Isolated cleft palate (E) Glossoptosis

Triad of micrognathia, glossoptosis & cleft palate

- Cleft soft palate
- High-arched palate
- Jaw that is very small with small (receding) chin
- Jaw that is far back in the throat

106. True about mammalian mitochondrial DNA:

a) Contains around 16500 nucleotide sequence

b) Makes up around 3% total cellular DNA

c) Makes up around 10% total cellular DNA

d) Makes up around 0.3% total cellular DNA

e) Makes up around 1% total cellular DNA

Correct Answer - A:E

Answer- (A) Contains around 16500 nucleotide sequence
(E) Makes up around 1% total cellular DNA

- In mammalian cells, mitochondrial DNA makes up less than 1% of the total cellular DNA.
- A unique feature of mitochondrial DNA is maternal inheritence.
- mitochondria have there own genomes consisting of double-strand mitochondrial DNA (mtDNA) molecule consisting of a 16, 569 nucleotide sequence.
- mtDNA sequence contains a total of 37 genes encoding 13ETC.

107. All are true about focal nodular hyperplasia except:

a) Multiple nodule may present

b) More common in male

c) May be associated with contraceptive pills use

d) Hypovascular on the arterial-phase and hypervascular on the delayed-phase CT images

e) CT is less sensitive than MRI in depicting the characteristic central scar

Correct Answer - B

Answer- B. More common in male

FNH is typically benign

- "FNH is most frequently found in young to middle-aged adults, with a strong female predilection.
- the lesion is multinodular
- Bile ductules are usually found at the interface between hepatocytes and fibrous regions.
- Kupffer cells are present

108. High level of hCG is/are seen in all except :

a) Down syndrome

b) Neural tube defect

c) Germ cell tumor

d) Gestational trophoblastic disease

e) Multiple pregnancy

Correct Answer - B

Answer- B. Neural tube defect

- 'High level of hCG auld be detected in- multiple pregnancy, hydatiform mole, choriocarcinoma, Down syndrome,
- Plasma lower levels are found in ectopic pregnancies & in spontaneous abortion.
- hCG is producedby the syncytiotrophoblast of the placenta.

109. Human papilloma virus is/are associated with all except:

a) Oropharyngeal tumors

b) Carcinoma nasophraynx

c) Carcinoma anal canal

d) Carcinoma pancreas

e) Carcinoma cervix

Correct Answer - B:D
Answer- (B) Carcinoma nasophraynx (D) Carcinoma pancreas
Skin warts (Plantar wart, common wart, flat wart &
Epidermodysplasia verruciformis)
Papilloma (Laryngeal, Oral)
Condyloma acuminatum (genital wart)
Oral squamous cell carcinoma
Cervical intraepithelial neoplasia (CIN)
Carcinoma cervix

110. Neuroendocrine cell tumour markers are:

a) Chromogranin A

b) CD56

c) Neuron-specific enolase

d) Synaptophysin

e) Cytokeratin 7

Correct Answer - A:B:C:D
Answer- A,Chromogranin A B,CD56 C,Neuron-specific enolase D, Synaptophysin
Chromogranin A is the most widely used
Neuron-specific enolase (NSE) is a cytosolic marker of neuroendocrine differentiation.
Synaptophysin found in small vesicles of neurons and neuroendocrine tumors.
CD 56 are markers.

111. True about Hodgkin's lymphoma :

a) Often localized to single axial group of lymph node

b) Hepatomegaly is always present

c) Contiguous spread of lymph node

d) Can be cured by chemotherapy & radiotherapy

e) Commonly resents with painless lymphadenopathy

Correct Answer - A:C:D:E

Answer- (A) Often localized to single axial group of lymph node (C) Contiguous spread of lymph node (D) Can be cured by chemotherapy & radiotherapy (E) Commonly resents with painless lymphadenopathy

Hodgkin's lymphoma is a malignant neoplasm of lymphoreticular system.

It can involve lymph nodes, spleen and liver.

Common in males.

Classic diagnostic feature is the presence of Reed- Sternberg (RS) cells or Dorothy- Reed Sternberg cells.

Classic markers for Hodgkin's disease is CD 15 & CD 30.

Axial lymphatic system is almost always affected in Hodgkin's disease.

Cervical & mediastinal lymph nodes are involved most frequently.

Most commonly in patients present as painless, movable and firm lymphadenopathy.

Treatment-

- Stage I/ II classical Hodgkin's disease-
- Chemotherapy + field radiotherapy

112. Schaumann bodies are not seen in :

a) Sarcoidosis

b) Histoplasmosis

c) Cryptococcosis

d) Hypersensitivity pneumonitis

e) Tuberculosis

Correct Answer - B:C
Answer- B,Histoplasmosis C,Cryptococcosis
Sarcoidosis,
Hypersensitivity pneumonitis,
Berylliosis
Crohn's disease & tuberculosis

113. CD 30 is/are marker for:

a) Anaplastic large cell lymphoma

b) Embryonal cell carcinoma

c) Squamous Cell Carcinoma

d) Seminoma

e) Hodgkin's lymphoma

Correct Answer - A:B:E

Answer- (A) Anaplastic large cell lymphoma (B) Embryonal cell carcinoma (E) Hodgkin's lymphoma

CD30 is positive in anaplastic large cell lymphoma & Hodgkin's lymphoma.

Activated B cells, T cells, and monocytes; also expressed by Reed-Sternberg cells and variants in classical Hodgkin lymphoma.

114. Chromosomal abnormalities in Down syndrome is/are due to:

a) Nondisjunctional of maternal chromosome

b) Nondisjunctional of paternal chromosome

c) Translocations between chromosome 21 & 14

d) Disjunction of paternal chromosome

e) Disjuction of maternal chromosome

Correct Answer - A:B:C

Answer- (A)Nondisjunctional of maternal chromosome (B) Nondisjunctional of paternal chromosome (C)Translocations between chromosome 21 & 14

Trisomy 21 (47, XX+21) is the most common (95%) chromosomal abnormality in Down syndrome.

In Down syndrome large fragment of 14 or 15 or 22 chromosome fuses with large fragment of chromosome 21→ Extra material comes on 21 and it acts like third 21st chromosome → Trisomy 21.

Extra chromosome is of maternal in origin.

I% have mosaic with some all have 46 chromosome.

4% have robertsonian translocation.

1. t (13 : 21)
2. t (14 : 21)
3. t (15 : 21)

Very rarely long arm of chromosome 21 is triplicate (Partial trisomy).

115. All are true about intestinal polyp syndrome except:

a) Cowden disease- Hamartomatous polyps

b) Hereditary nonpolyposis colorectal carcinoma(HNPCC)- Multiple adenomatous polyps

c) Peutz-Jeghers syndrome-associated with colonic carcinoma

d) Colonic hyperplastic polyp has malignant potential

e) Cronkhite-Canada syndrome- may have associated breast tumour

Correct Answer - D
Answer- D. Colonic hyperplastic polyp has malignant potential
Colonic hyperplastic polyps are bening epithelial proliferation.

116. Increase thickness of gastric mucosal fold is seen in:

a) Menetrier's disease

b) Gastritis cystica

c) Boerhaave syndrome

d) Zollinger-Ellison syndrome

e) All

Correct Answer - A:B:D
Answer- (A) Menetrier's disease (B) Gastritis cystica (D) Zollinger-Ellison syndrome
Two well defined examples are Menetrier's disease & Zollinger-Ellison syndrome
Gastric gland hyperplasia secondary to excessive gastrin secretion, in the setting of a gastrinoma.

117. True about fibrolamellar carcinoma of liver:

a) Better prognosis than typical hepatocellular carcinoma

b) Associated with cirrhosis

c) AFP-positive

d) Occur in younger adults

e) More common in females

Correct Answer - A:D:E

Answer- (A)Better prognosis than typical hepatocellular carcinoma (D)Occur in younger adults (E)ore common in females

It is a distinctive variant of hepatocellular carcinoma
It is seen in young adults (20-40 yrs of age)
It has equal sex incidence
It has better prognosis
It has no association with HBV or cirrhosis
It is grossly encapsulated mass.
AFP elevation is not seen in Fibrolamellar Ca

118. Not seen in post streptococcal glomerulonephritis(PSGN):

a) Nephrotic range proteinuria

b) Neutrophilic infiltration of tubules

c) Subepithelial deposits

d) Linear deposits along glomerular basement membrane

e) None

Correct Answer - A:B:D

Answer- (A)Nephrotic range proteinuria (B)Neutrophilic infiltration of tubules (D)Linear deposits along glomerular basement membrane

It typically affects children between the ages of 2 and 14 years.

It is more common in males.

Poststreptococcal glomerulonephritis due to impetigo develops 2-6 weeks after skin infection and l-3 weeks after streptococcal pharyngitis.

There is granular subendothelial immune deposits of IgG, IgM, C3, C4 and C5-9, and subepithelial deposits.

Clinical features-

- Acute nephritis with hematuria, pyuria red blood cell casts, edema, hypetension, and oliguric renal failure.
- 20% of adults have proteinuria in the nephrotic range.
- Antibodies in streptococcal infection: ASO Anti-DNAase B, Anti-Streptokinase, anti-Nicotinyl adenine dinucleotidase &
- Anti-Hyaluronidase.

119. Blood transfusion reaction can leads to:

a) Acute glomerulonephritis

b) Myoglobinuria

c) Hemoglobinuria

d) Transfusion-related acute lung injury

e) Acute renal tubular necrosis

Correct Answer - C:D:E
Answer- (C) Hemoglobinuria (D) Transfusion-related acute lung injury (E) Acute renal tubular necrosis
Hemolytic transfusion reaction
Intravascular hemolysis
Transfusion-related acute lung injury (TRALI)
Renal failure

120. True about follicular lymphoma:

a) Lymphadenopathy is the most common presentation

b) BCL-1 positive

c) CD5 positive

d) More common in males than females

e) All

Correct Answer - A

Answer- A. Lymphadenopathy is the most common presentation

It is the tumor of germinal centre (follicular centre), B cells, and is strongly associated with chromosomal translocation involving Bcl 2.

Growth pattern is nodular (follicular) or nodular (follicular) and diffuse.

The neoplastic cells closely resemble normal germinal centre B cells, expressing CD19, CD 20, CD 10, surface Ig, and Bcl 6.

In most follicular lymphomas, centrocytes predominate.

It usually presents in middle age and affects males and females equal.

The most common presentation for follicular lymphoma is with new painless lymphadenopathy.

121. True about Chronic Lymphocytic Leukaemia:

a) Most common leukaemia in adult

b) Proliferation centre is path gnomonic

c) Massive splenomegaly

d) Radiotherapy & chemotherapy are given in treatment

e) None

Correct Answer - A:B:C

Answer- (A) Most common leukaemia in adult (B) Proliferation centre is path gnomonic (C) Massive splenomegaly

- CLL is the most common form of NHL.
- CLL is when peripheral blood lymphocytes count is exceeding 4000 cells/ µL.
- The tumour cells contains high level of BCL2 (inhibits apoptosis).

Clinical features-

- Splenomegaly & hepatomegaly
- Hypogammaglobulinemia leads to bacterial infection in combination of neutropenia.

Treatment-

- Alkylating drugs as cyclophosphamide
- Corticosteroids
- Radiotherapy & chemotherapy
- Splenectomy in AIHA

122. True about mitochondrial DNA:

a) Linear

b) Circular

c) Transmitted by mother only

d) Transmitted by both parents

e) Contains less gene than nuclear DNA

Correct Answer - B:C:E

Answer- (B) Circular (C) Transmitted by mother only
(E) Contains less gene than nuclear DNA

In sexual reproduction, mitochondria are normally inherited exclusively from the mother; the mitochondria in mammalian sperm are usually destroyed by the egg cell after fertilization.

UGA codes for tryptophan, Codes for 13 proteins, Circular double stranded DNA, Mitochondrial disease occur due to Point Mutations and Large-Scale Rearrangements.

The remaining 22 tRNA and 2 rRNA-encoding genes are dedicated to the process of translation of the 13 mtDNA encoded proteins.

123. True about autosomal dominant type of inheritance:

a) 25% affected & 50 % carrier, if one parent affected

b) 50% affected & 75 % carrier, if both parent affected

c) 75% affected, if both parent affected

d) 50% affected, if one parent affected

e) All carrier irrespective of either one parent affected or both parent affected

Correct Answer - D
Answer- D. 50% affected, if one parent affected
Autosomal dominant disorders are manifested in the heterozygous state .
Both males and females are affected.
Because the alleles segregate randomly at meiosis, the probability that an offspring will be affected is 50%.

124. In a-thalassemia, Hb Barts is said when number of gene loci affected is:

a) 1

b) 2

c) 3

d) 4

e) None

Correct Answer - D
Answer- D. 4
The alpha-thalassemias are caused by inherited deletions that result in reduced or absent synthesis of alpha-globin chains.
Normally, there are four alpha-globin genes.

125. Which of the following cellular component gives purplish blue colour with H & E reagent:

a) Reticulum

b) Elastin

c) P-selectin

d) Collagen

e) Heterochromatin

Correct Answer - A:E

Answer- (A) Reticulum (E) Heterochromatin

- The most commonly used staining system is called H&E (Haematoxylin and Eosin).
- H&E contains the two dyes haematoxylin and eosin.
- Eosin produces three different hues-
- Red blood cells stain dark reddish orange
- Collagen (acidophilic) stains a lighter pastel pink.
- Smooth muscle stains bright pink.
- Haematoxylin is a basic dye.
- It is used to stain acidic (or basophilic) structures a purplish blue.
- Nucleus is stained purple by H&E staining.

126. True about gluten sensitive enteropathy:

a) Diet should exclude barley, wheat & rye

b) Intestinal biopsy is diagonstic

c) Anti IgA endomycial antibody is specific

d) Mucosal hyperplasia

e) None

Correct Answer - A:C

Answer-(A)Diet should exclude barley, wheat & rye (C)Anti IgA endomycial antibody is specific

- Intolerance to gliadin a component of gluten present in wheat, barley, rye & oat.
- Absence or reduced height of villi (Flat appearance)
- Crypt hyperplasia, villous atrophy, Cuboidal appearance of epithelial cells & increased intraepithelial lynphocytes.
- Antiendomysial antibodies
- Disappearance of Ig antiendomysial antibodies following institution of a gluten free diet is diagnostic.
- lgA antiendomysial.

127. Which of the following is true about glutathione & glutathione peroxidase:

a) Act as scavenger of free radicle

b) Glutathione has anti-oxidant property

c) Reduced glutathione can chemically detoxify H202

d) Oxidized glutathione can chemically detoxify H202

e) None

Correct Answer - A:B:C

Answer- (A) Act as scavenger of free radicle (B) Glutathione has anti-oxidant property (C) Reduced glutathione can chemically detoxify H202

- It helps in detoxification of H_2O_2 by reducing it. Superoxide anion (O_2) first converted to H_2O_2 by superoxide dismutase.
- H_2O_2 is then reduced to H_2O_2 by glutathione perioxidase, a reaction requires reduced glutathione. Thus, glutathione scavenges free radicals and superoxide anion.
- A series of enzymes acts as free radical-scavenging systems and breaks down H_2O_2 and O_2

128. True about hyperacute rejection in renal transplant:

a) Occur within few days of transplant

b) T cell involvement

c) Blood vessel thrombosis

d) Eosinophilic infiltration

e) B cell infiltration

Correct Answer - C

Answer- (C)Blood vessel thrombosis

- Hperacute rejection occurs when preformed antidonor antibodies are present in the circulation of the recipient.
- Acute antibody-mediated rejection is caused by antidonor antibodies produced after transplantation.
- It is mediated by preformed humoral antibody.
- In acute rejection there is infiltration of T & B cell

129. Histological finding of hypertrophic cardiomyopathy includes:

a) Myocyte disaaray

b) Interstitial fibrosis

c) Amyloid deposition in muscle

d) Myocyte hypertrophy

e) Myocardial fibres are arranged in parallel pattern

Correct Answer - A:B:D

Answer- (A) Myocyte disaaray (B) Interstitial fibrosis (D) Myocyte hypertrophy

Most important histologic features of the myocardium in HCM are-

1. extensive myocyte hypertrophy
2. haphazard disarray of bundles of myocytes- myocytes, and contractile elements in sarcomeres within cells (myofiber disarray)
3. interstitial and replacement fibrosis

130. True about bcl-2:

a) T Apoptosis

b) Apoptosis

c) T Resistance of tumour to treatment

d) Only associated with follicular lymphoma

e) Cause meningioma

Correct Answer - B:C
Answer- (B) Apoptosis (C) T Resistance of tumour to treatment
Bcl-2 inhibits apoptosis; a (14:18) translocation resulting in overexpression of the bcl-2 protein in B lymphocytes causes apoptosis of neoplastic cells to be permanently inhibited, producing follicular lymphoma.

131. True about thrombus formation:

a) Arterial thrombus grow in direction toward heart

b) Venous thrombus grow in direction toward heart

c) Venous thrombus form chicken fat

d) Line of Zahn is seen microscopically in red thrombi

e) None

Correct Answer - B:D

Answer- (B) Venous thrombus grow in direction toward heart
(D) Line of Zahn is seen microscopically in red thrombi

Arterial or cardiac thrombi usually begin at a site of endothelial injury.

Venous thrombi characteristically occur in sites of stasis.

Arterial thrombi tend to grow in a retrograde direction from the point of attachment.

Venous thrombi extend in the direction of blood flow (i.e., toward the heart).

When formed in the heart or aorta, thrombi may have grossly (and microscopically) apparent laminations, called lines of Zahn.

Arterial thrombi are usually occlusive; the most common site.

132. Finding in histopathology of brain in rabies includes:

a) Negri body

b) Nodule

c) Neuronophagia

d) Vacuolar degenerative changes

e) Inflammatory cell

Correct Answer - A:B:C:E
Answer- (A) Negri body (B) Nodule (C) Neuronophagia (E) Inflammatory cell
Rabies is a severe encephalitis transmitted to humans by the bite of a rabies animal.
Macroscopically, brain shows intense edema and vascular congestion.
Microscopically,
Widespread neuronal degeneration and an inflammatoty reaction that is most severe in the rhombencephalon.
Negri bodies, the pathognomonic microscopic finding can be found in pyramidal neurons of the hippocampus and Purkinje cells of the cerebellum.
Pathologic studies show mild inflammatory changes in the CNS in rabies, with mononuclear inflammatory infiltration in the leptomeninges, perivascular regions, and parenchyma, including microglial nodules called Babes nodules.
Neuronophagia is observed occasionally.

133. True about primary biliary cirhhosis:

a) More common in female

b) Periportal fibrosis

c) May be ssociated with Rheumatoid arthritis & crohn's disease

d) Jaundice may be present

e) All

Correct Answer - A:B:D

Answer- (A) More common in female (B) Periportal fibrosis (D) Jaundice may be present

PBC is primarily a disease of middle-aged women, with a female predominance of 9: l.

Antimitochondrial antibodies are the most characteristic- laboratory finding in PBC.

Etiology- portal inflammation and necrosis of cholangiocytes C/F

Hypercholesterolemia is common

Xanthelasma, and xanthomata

Hepatomegaly, splenomegaly, ascites, and edema.

Development of jaundice

Investigations-

The disease is confirmed by liver biopsy, which is considered diagnostic if a florid duct lesion is present.

134. Red infarct occur in:

a) In tissues with dual circulations

b) Occur only when both arterial & venous obstruction occurs simultaneously

c) Organs which are previously congested

d) Organs with loose tissue

e) All

Correct Answer - A:C:D

Answer- (A) In tissues with dual circulations (C) Organs which are previously congested (D) Organs with loose tissue

Red infarcts (Haemorrhagic) : occur with :

- Venous occlusions (eg ovarian torsion);
- In loose tissues (such as lungs);
- In tissues with dual circulation (e.g. Lung & S. intestine)
- In tissues that were previously congested because of sluggish venous out flow.
- When flow is reestablilshed to a site of previous arterial occulusion and necrosis.

135. True about hemophilia B:

a) Factor 8 deficiency

b) Factor 9 deficiency

c) X-linked disorder

d) Clinically indistinguishable from hemophilia A

e) Fresh frozen plasma given for treatment

Correct Answer - B:C:D

Answer- (B) Factor 9 deficiency (C) X-linked disorder
(D) Clinically indistinguishable from hemophilia A

Hemophilia is an X-linked recessive hemorrhagic disease due to mutations in the F8 gene (hemophilia A or classic hemophilia) or F9 gene (hemophilia B).

Male subjects are clinically affected.

Clinically, hemophilia A and hemophilia B are indistinguishable.

Hemophilia is classified as-

- severe (<1%),
- moderate (l-5%),
- or mild (6-30%)

Clinical features-

- Bleeding into the joints (hemarthrosis), soft tissues, and muscles.

Investigations-

- Hemophilia B- Normal BT & PT & increased PTT

Treatment-

- The disease is treated with infusions of recombinant factor u.

136. Alpha feto protein is/are increased in:

a) Yolk sac tumour

b) Seminoma

c) Dysgerminoma

d) Non-seminoma

e) Hepatocellular carcinoma

Correct Answer - A:D:E

Answer- (A) Yolk sac tumour (D) Non-seminoma
(E) Hepatocellular carcinoma

Serum alpha feto proetin level is elevated in non seminomatous testicular tumors.

Non seminomatous testicular tumors include:

1. Yolk sac or endodermal sinus tumor
2. Embryonal carcinoma
3. Teratomas
4. Non- seminoma

137. Spindle shaped cells is/are seen in which sarcoma:

a) Osteosarcoma

b) Chondromyosarcoma

c) Embryonal rhabdomyosarcoma

d) Leiomyosarcoma

e) Fibrosarcoma

Correct Answer - A:C:D:E

Answer- (A) Osteosarcoma (C) Embryonal rhabdomyosarcoma (D) Leiomyosarcoma (E) Fibrosarcoma

"Osteosarcoma'. The tumour cells may have various shapes such as spindled polygonal & bizarre tumour gaint cells.

Leiomyosarcomas: They consist of eosinophilic spindle cells with blunt-ended.

Fibrosarcoma- Malignant fibrous arranged in a herringbone pattern.

Malignant fibrous histiocytoma of spindled fibroblasts arranged in a storiform pattern admixed with large; ovoid, bizarre multinucleated tumor giant cell.

"Embryonal rhabdomyosarcoma: consist of sheets of both primitive roundatd spindled cells in a myxoid stroma.

"Liposarcomas- contains adipocytes with scattered atypical spindle cells.

138. Feature of Von Hippel Lindau syndrome:

a) Mutation in chromosome 13

b) Mutation in chromosome 3

c) Pancreatic cyst

d) Cerebellar hemangioblastoma

e) All

Correct Answer - B:C:D

Answer- (B) Mutation in chromosome 3 (C) Pancreatic cyst (D) Cerebellar hemangioblastoma

This is an autosomal-dominant disease in which affected individuals develop tumors in cerebellar hemispheres, the retina, and, less commonly, the brainstem and spinal cord.

The gene for von Hippel-Lindau disease, a tumor-suppressor gene, is located on chromosome 3p25-26.

The cerebellar capillary hemangioblastoma, is the neurologic manifestation of the disease.

Retinal angiomas, Pheochromocytoma are also associated tumours.

139. All are the feature (s) of Hermansky-pudlak syndrome except:

a) Autosomal dominant inheritance

b) Oculocutaneous albinism

c) Bleeding disorder

d) Pulmonary fibrosis

e) Pain

Correct Answer - A

Answer- A. Autosomal dominant inheritance

It is a rare autosomal recessive disorder which results in oculocutaneous albinism, bleeding problems due to a platelet abnormality (platelet dysfunction), storage of an abnormal fat-protein compound.

Chromosome 10q23 is affected.

There are eight classic forms of the disorder in which last type of disorder is due to gene Pallidin (PLDN)

The major complication of the disorder is pulmonary fibrosis.

140. Difference between active & resting cell depend on which phase of cell cycle:

a) GO

b) G1

c) G2

d) M

e) S

Correct Answer - A

Answer- A. GO

The cell cycle consists of four distinct phases-

- G1 phase
- S phase
- G2 phase
- M phase

Quiescent/ senescent-

- Gap O
- A resting phase where the cell has left the cycle and has stopped dividing.

141. Not feature (s) of apoptosis:

a) Mediated by Caspases

b) Inhibition of Endonuclease activity

c) Membrane bleb are seen

d) Chromatin condensation

e) Association with inflammation

Correct Answer - B:E

Answer- (B) Inhibition of Endonuclease activity (E) Association with inflammation

Caspase activates endonuclease (neuronal apoptosis lacks caspases, thus activation of AIF)

MORPHOLOGICAL FEATURES:

- Convolution of cell membrane
- Leading to formation of cytoplasmic blebs (although cell membrane remains intact).
- Chromatin condensation (pyknosis)/nuclear compaction
- Does not elicit any inflammatory response due to intact cell membrane.

142. True about Intravascular hemolysis:

a) Increased serum haptoglobin

b) Increase Stercobillin in urine

c) Increase plasma myoglobin

d) Increased fecal excretion of urobilin

e) Hemosiderinuria

Correct Answer - D:E

Answer- (D) Increased fecal excretion of urobilin

(E) Hemosiderinuria

Intravascular hemolysis is manifested by

1. hemoglobinemia
2. hemoglobinuria
3. jaundice
4. hemosiderinuria

Decreased serum haptoglobin is characteristic of intravascular hemolysis.

Common Features of Hemolytic Disorders-

- Hb reduced
- MCV, MCH- increased
- Reticulocytes- increased
- Bilirubin- increased

143. Rheumatic heart disease is/are:

a) Endocarditis

b) Constructive pericarditis

c) Most commonly involve trisucpid valve

d) Bread butter pericarditis

e) Pancarditis

Correct Answer - A:D:E

Answer- (A) Endocarditis (D) Bread butter pericarditis (E) Pancarditis

Acute rheumattc carditis durlng the active phase of RF may progress to chronic rheumatic heart disease (RHD).

During acute RF, diffuse inflammation and Aschoff bodies found three layers of the heart-

pericardium, myocardium or endocardium lesion is called a pancarditis.

Chronic RHD is characterized by organization of the acute inflammation and subsequent fibrosis.

The cardinal anatomic changes of the mitral (or tricuspid) valve are leaflet thickening, commissural fusion and shortening' and thickening and fusion ofthe tendinous cords.

In chronic disease, the mitral valve ls virtually always abnormal.

RHD is the most frequent cause of mitral stenosis.

Fibrous bridging across the valvular commissures and calcification create "fish mouth" or buttonhole stenoses.

- Carditis,
- Subcutaneous nodules,
- Erythema marginatum of the skin, and

- Sydenham chorea, a neurologic disorder with involuntary purposeless, rapid movements

144. All of the the following statement (s) is/are true except:

a) Denever group F-contain X chromosome

b) Denever group C-contain X chromosome

c) Denever group G-contain acrocentric chromosome

d) Bar body is inactive X chromosome

e) In normal females generally one of the chromosomes undergoes X inactivation in somatic cells

Correct Answer - A

Answer- (A) Denever group F-contain X chromosome

The classification of chromosomes based on Denver group classification

Chromosome Class	Size	Relative Position of Centromere
Group A (1-3)	Large	Metacentric
Group B (4-5)	Large	Submetacentric
Group C (6-12,X)	Medium	Submetacentric
Group D (13-15)	Medium	Acroentric
Group E (16-18)	Relatively shot	Submetacentric
Group F (19-20)	short	Metacentric or Submetacentric
Group G (21-22,Y)	Short	Acroentric

145. Percutaneous liver biopsy is/are contraindicated in:

a) Ascites

b) Hemangioma of liver

c) Platelet count <60000/0

d) Hepatic metastasis

e) Echinococcus cyst in liver

Correct Answer - A:B:C:E
Answer- (A) Ascites (B) Hemangioma of liver (C) Platelet count <60000/0 (E) Echinococcus cyst in liver
Thrombocytopenia
Ascites
Difficult body habitus
Suspected hemangiona
Suspected echinococcal infection
Uncooperative patient

146. True about Alcoholic cirrhosis:

a) Predominantly macronodular pattern

b) Bile duct proliferaton

c) Mallory body hardly seen

d) Disturbed normal architecture

e) All

Correct Answer - B:C:D

Answer- (B) Bile duct proliferaton (C) Mallory body hardly seen (D) Disturbed normal architecture

Fibrosis can be centilobular, pericellular, or periportal.

There is disruption of the normal layer architecture and replacement of liver cells by regenerative nodules.

In alcoholic cirrhosis, referred to as micronodular.

With cessation of alcohol use, larger nodules may form, resulting in a mixed micronodular and macronodular cirrhosis.

Scattered larger nodules create a "hobnail" appearance on the surface of the liver.

The etiological clue to diagnosis in the form of Mallory bodies is hard to find in a fully-developed alcoholic cirrhosis.

147. Which of the following statement (s) is/are true:

a) In Robertsonian translocation the breaks occur close to the centromeres of each chromosome

b) Aneuploidy is abnormal chromosome number caused by either gain or loss of chromosome

c) Comparative genomic hybridisation (CGH) is a technique that permits the detection of chromosomal copy number Haploid is normal number & composition of chromosome

d) Haploid is normal number & composition of chromosome

e) All

Correct Answer - A:B:C

Answer- (A) In Robertsonian translocation the breaks occur close to the centromeres of each chromosome (B) Aneuploidy is abnormal chromosome number caused by either gain or loss of chromosome (C) Comparative genomic hybridisation (CGH) is a technique that permits the detection of chromosomal copy number

Aneuploidy: An abnormal chromosome number caused by either gain or loss of chromosomes.

Haploid: Only one-half the normal complement, that is, 23 chromosomes

Comparative genomic hybridisation (CGH) is a technique that permits the detection of chromosomal copy number changes without the need for cell culturing.

Robertsonian translocation (or centric fusion): It is a translocation

between two acrocentric chromosomes. Typically the break occur close to the centromeres of each chromosome.

148. All are true about Histamine except:

a) Secreted by macrophage

b) Vasoconstriction of arterioles

c) Smooth muscle contraction

d) Mediate inflammation

e) None

Correct Answer - A:B

Answer- (A) Secreted by macrophage (B) Vasoconstriction of arterioles

'Histamine induces smooth muscle contraction in diverse tissues.

Histamine is widely distributed in tissues, the richest source being the mast cells.

Histamine causes dilation of the arterioles and increases the permeability of venules

It acts on the microcirculation.

149. All are true about Lesch-Nyhan syndrome except:

a) Hyperurecaemia

b) Mental retardation

c) Stone production

d) Occur equally in both sexes

e) X-linked

Correct Answer - D

Answer- D. Occur equally in both sexes

A complete deficiency of HPRT, the Lesch-Nyhan syndrome, is characterized by hyperuricemia, self-mutilative behavior, choreoathetosis, spasticity, and mental retardation.

This is a rare X-linked disorder of purine metabolism that results from HPRT deficiency.

The hyperuricemia results from urate overproduction and can cause uric acid crystalluria, nephrolithiasis, obstructive uropathy, and gouty arthritis.

Affects Males only.

Etiology- hereditary

Treatment-

Allopurinol

150. True about Neutrophil:

a) Engulf bacteria

b) Multilobed

c) Neutrophil granules are slightly basic and stain weakly with the azurophilic component of Romanowsky stains

d) Neutrophilia occur in acute bacterial infection

e) Primary granules is also called specific ganules

Correct Answer - A:B:C:D

Answer- (A) Engulf bacteria (B) Multilobed (C) Neutrophil granules are slightly basic and stain weakly with the azurophilic component of Romanowsky stains (D) Neutrophilia occur in acute bacterial infection

'Neutrophil contain primary or azurophil granules & secondary or specific granules

Neutrophilia occur in acute bacterial infection.

The nucleus of neutrophils normally contains up to four segments.

Characteristic features are- Condensed, multilobed nucleus

Function-

- Hydrolytic substrate degradation
- Kill ingested bacteria
- Regulate inflammation

151. Marker (s) of Langerhans cell histiocytosis:

a) CD1a

b) S 100

c) CD 3

d) CD 5

e) CD 30

Correct Answer - A:B
Answer- (A) CD1a (B) S 100
The proliferating Langerhans cells in Langerhans cell histiocytosis are HLA-DR positive and express the CD1 antigen.
The hallmark of LCH is positivity for S-100 protein & CD 1 a positivity.

152. Feature (s) of fibroadenoma of breast include:

a) Clearly defined edge on palpation

b) Hormone responsive tumor

c) Contain both epithelial & stromal elements

d) Well-encapsulated

e) Common after menopause

Correct Answer - A:B:C:D

Answer- (A) Clearly defined edge on palpation (B) Hormone responsive tumor (C) Contain both epithelial & stromal elements (D) Well-encapsulated

Fibroadenomas are easy to move, with clearly defined edge so called as breast mouse.

Most common benign breast tumor of female breast.

They are frequently multiple & bilateral.

Fibroadenomas are benign solid tumors composed of stromal and epithelial elements.

On excision, fibroadenomas are well-encapsulated masses.

Fibroadenomas do nothave malignant potential.

153. Breast cancer is/are associated with:

a) Familial adenomatous polyposis

b) Ataxia-telangiectasia

c) Peutz-Jeghers syndrome

d) Cowden disease

e) Von Hippel Lindau syndrome

Correct Answer - B:C:D

Answer- (B) Ataxia-telangiectasia (C) Peutz-Jeghers syndrome (D) Cowden disease

Von Hippel Lindau symdrome is not associated with breast carcinoma.

Familial adenomatous polyposis is associated with colorectal carcinoma & some other cancer but not breast cancer.

STK11/LKB1 (Peutz- Jeghers syndrome)

PTEN (Cowden disease)

154. Hyperglycemia is/are associated with:

a) Cushing disease

b) Addison disease

c) Pheochromocytoma

d) Hyperthyroidism

e) Acromegaly

Correct Answer - A:C:D:E

Answer- (A) Cushing disease (C) Pheochromocytoma (D) Hyperthyroidism (E) Acromegaly

Endocrinopathies associated with hyperglycemia-

- Acromegaly
- Cushing syndrome
- Hyperthyroidism
- Pheochromocytoma
- Glucagonoma

155. Calcium level is increased in:

a) Parathyroid adenoma

b) Thiazide diuretics

c) Chronic renal failure

d) Hypervitaminosis D

e) Cirrhosis

Correct Answer - A:B:C:D
Answer- (A) Parathyroid adenoma (B) Thiazide diuretics (C) Chronic renal failure (D) Hypervitaminosis D
Hyperparathyroidism
Adenoma
Thiazide diuretics

156. Cause (s) of megaloblastic anaemia include:

a) Anticonvulsant drugs

b) Pregnancy

c) Resection of ileum

d) Gastrectomy

e) Crohn's disease

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

Answer- All (A) Anticonvulsant drugs (B) Pregnancy (C) Resection of ileum (D) Gastrectomy (E) Crohn's disease

I. VITAMIN B_1 DEFICIENCY

- **Inadequate dietary intake e.g. strict vegetarians, breast-fed infants,**
- **Malabsorption**

.. **Gastric causes: pernicious anaemia, gastrectomy, congenital lack of intrinsic factor.**

2.. **Intestinal causes: tropical sprue, ilea! resection, Crohn's disease, intestinal blind loop syndrome, fish-tapeworm infestation.**

II, FOLATE DEFICIENCY

- Inadequate dietary intake e.g. in alcoholics, teenagers, infants, old age, poverty.
- Malabsorption e.g. in tropical sprue, coeliac disease, partial gastrectomy, jejuna! resection, Croh Ifs disease.
- Excess demand

.. **Physiological: pregnancy, lactation, infancy.**

2. **Pathological: malignancy, increased haematopoiesis, chronic exfoliative skin disorders, tuberculosis, rheumatoid arthritis.**
- Excess urinary folate loss e.g. in active liver disease, congestive heart failure.

III. OTHER CAUSES
- Impaired metabolism e.g. inhibitors of di hydrofolate (DHF) reductase such as methotrexate and pyrimethamine; alcohol, congenital enzyme deficiencies.
- **Unknown etiology e.g. in Di Guglielmo's syndrome, congenital dyserythropoietic anaemia, refractory megaloblastic anaemia.**

157. Which of the following is CD 15 & CD30 positive:

a) Lymphocyte predominance Hodgkin's lymphoma

b) Mantle cell lymphoma

c) Burkit's lymphoma

d) Mixed cellularity Hodgkin's lymphoma

e) Diffuse large B cell lymphoma

Correct Answer - D
Answer- D. Mixed cellularity Hodgkin's lymphoma
CD15-

- Granulocytes; also expressed by Reed-Sternberg cells and variants in classical Hodgkin lymphoma

CD30-

- Activated B cells, T cells, and monocytes; also expressed by Reed-Sternberg cells and variants in classical Hodgkin lymphoma.

158. B cell antigens are:

a) CD 1

b) CD 2

c) CD 3

d) CD 19

e) CD 20

Correct Answer - D:E
Answer- (D) CD 19 (E) CD 20
CD1- Cortical thymocytes and Langerhans histiocytes
CD3- Thymocytes, peripheral T cells
CD19- Marrow pre-B cells and mature B cells but not plasma cells
CD20- Marrow pre-B cells after CD19 and mature B cells but not plasma cells

159. True about proto oncogene :

a) Only found in virus

b) Only found in malignant cell

c) Normally involved in cell cycle proliferation

d) Can be converted to oncogene

e) On mutation it causes cancer

Correct Answer - C:D:E

Answer- (C) Normally involved in cell cycle proliferation (D) Can be converted to oncogene (E) On mutation it causes cancer

Genes that promote autonomous cell growth in cancer cells are called oncogenes, and their normal cellular counterparts are called protooncogenes.

Proteins encoded by protooncogenes may function as growth factor malignants and receptors, signal transducers, transcription factors, and cell-cycle components.

160. Thrombosis is predisposed by:

a) Protein S deficiency

b) Complement deficiency

c) Antiphospholipid antibody syndrome

d) Homocysteinuria

e) All

Correct Answer - A:C:D

Answer- (A) Protein S deficiency (C) Antiphospholipid antibody syndrome (D) Homocysteinuria

Hypercoagulable states-

Primary (Genetic)-

- Protein C deficiency
- Protein S deficiency
- Homozygous homocystinuria

Secondary (acquired)-

- MI
- Atrial fibrillation
- Prosthetic cardiac valves
- DIC
- Thrombocytopenia

161. Pancytopenia can occur in:

a) CML

b) Kala-azar

c) Typhoid

d) Hairy cell leukemia

e) None

Correct Answer - B:D

Answer- (B) Kala-azar (D) Hairy cell leukemia

Primary bone marrow diseases-

- Myelodysplasia
- Paroxysmal nocturnal hemoglobinuria
- Myelofibrosis
- Bone marrow lymphoma Hairy cell leukemia
- Sarcoidosis
- Tuberculosis
- Leishmaniasis

162. Non-small cell lung carcinoma is/are associated:

a) K-ras

b) EGFR

c) WT1

d) P53

e) All

Correct Answer - A:B:D
Answer- (A) K-ras (B) EGFR (D) P53
K- RAS mutations are seen primarily in adenocarcinoma.
p53 and RB tumor suppressor genes are frequently mutated- Squamous cell carcinomas
EGFR- Adenocarcinoma

163. Cyclin dependent kinase-2 (CDK-2) acts via:

a) Cyclin A

b) Cyclin B

c) Cyclin C

d) Cyclin D

e) Cyclin E

Correct Answer - A:E
Answer- (A) Cyclin A (E) Cyclin E
Forms a complex with cyclin E in late G1, which is involved in the G1/S transition.
Forms a complex with cyclin A at the S phase that facilitates the G2/M transition.

164. True about carotid body tumor:

a) Slow growing tumour

b) Uncapsulated

c) Mostly Bilateral

d) Mostly benign

e) All

Correct Answer - A:D
Answer- (A) Slow growing tumour (D) Mostly benign
Rare tumour occur b/w 3rd & 6th decade of life with slight female preponderance
A few are bilateral & some show familial incidence
Grossly they are small, firm, dark tan, encapsulated nodules
Tumours are usually benign with only a small number of cases producing proven metastases.
There is often a long history of a slowly enlarging, painless lump at the carotid bifurcation.

165. Which of the following is/are true about autosomal dominant polycystic kidney disease except:

a) Many patients may be asymptomatic till 3rd or 4th decade

b) Pancreatic cyst

c) Associated with hypertension

d) Subarachnoid haemorrhage is most common extra renal complication

e) None

Correct Answer - D

Answer- D. Subarachnoid haemorrhage is most common extra renal complication

ADPKD is characterized by the progressive bilateral formation of renal crisis.

Inheritance- autosomal dominant

Characterized by multiple expanding cysts of both kidneys.

In gross appearance, the kidneys are bilaterally enlarged.

The pain may result from renal cyst infection, haemorrhage, or nephrolithiasis.

'Intravenous urography polycystic kidney disease: The spider legs, deformity of the calyces

Focal renal cysts are typically detected in affected subjects before 30 years of age.

Complications-

Hematuria, flank pain, urinary tract infection, renal stones, hypertension

166. Epidermal growth factor is/are formed by:

a) Platelet

b) Fibroblast

c) Mast cell

d) Endothelial cell

e) Keratinocyte

Correct Answer - A:E
Answer- (A) Platelet (E) Keratinocyte
In healing wounds of the skin, EGF is produced by keratinocytes, macrophages, and other inflammatory cells that migrate into the area.

167. Which of the following is not a feature of reversible cell injury?

a) Diminished generation of adenosine triphosphate (ATP)

b) Formation of amorphous densities in the mitochondrial matrix

c) Formation of blebs in the plasma membrane

d) Detachment of ribosomes from the granular endoplasmic reticulum

e) Creation of myelin figures

Correct Answer - B

Answer- B. Formation of amorphous densities in the mitochondrial matrix

Large flocculent, amorphous densities in the mitochondrial matrix occur as a result of irreversible cell damage.

Membrane damage plays a central role in the pathogenesis of irreversible cell injury.

It is morphologically associated with severe swelling of the mitochondria, damage of plasma membranes and swelling of lysosomes.

168. Pericardial effusion is/are seen in all except:

a) Uraemia

b) SLE

c) Rheumatic fever

d) Myxedema

e) Hyperthyroidism

Correct Answer - E

Answer- (E) Hyperthyroidism

Infectious

- Viral
- Bacterial
- Fungal
- Parasite
- Rickettsia

Postinjury

- Trauma
- Surgery
- Myocardial infarction
- Radiation

Metabolic diseases

- Uremia
- Medications

Systemic diseases

- Rheumatoid arthritis
- Systemic lupus erythematosus

- Sarcoidosis
- Scleroderma
- Dermatomyositis
- Amyloidosis Tumors
- Aortic dissection

169. Which of the following is/are true about Prothrombin time:

a) Assess extrinsic pathways

b) T in Liver disease

c) L in Vit. K deficiency

d) Normal value is 2-4 minute

e) None

Correct Answer - A:B
Answer- (A) Assess extrinsic pathways (B) T in Liver disease
Prothrombia time assay assesses the function of the proteins in the extrinsic pathways.
Normal value- 10 to 14 sec
Evaluation of extrinsic & common pathway.
Increased in oral anticoagulation therapy, DIC and liver disease, Vitamin K deficiency.

170. at 30 yr of age, blood forming bone marrow are found in

a) Sternum

b) Sacrum

c) Pelvis

d) Upper end tibia

e) Upper end humerus

Correct Answer - A:B:C:D:E
Answer- (A) Sternum (B) Sacrum (C) Pelvis (D) Upper end tibia (E) Upper end humerus
By age 18 only the vertebrae, ribs, sternum, skull, pelvis, and proximal epiphyseal regions of the humerus and femur.

171. Anti-nuclear antibodies are not found in:

a) SLE

b) Diffuse Scleroderma

c) Drug induced lupus

d) Limited sceleroderma

e) Sarcoidosis

Correct Answer - E
Answer- (E) Sarcoidosis
Found in-

- Drug induced lupus
- Sjogren's syndrome
- Scleroderma
- Polymyositis
- Dermatomyositis
- Arthritis

172. True about Thrombotic thrombocytopenic purpura:

a) Indirect hyperbilirubemia

b) Spherocytosis with thrombocytopenia

c) Scistocytosis with thrombocytopenia

d) Thrombi formation

e) All

Correct Answer - A:C:D

Answer- (A) Indirect hyperbilirubemia (C) Scistocytosis with thrombocytopenia (D) Thrombi formation

It is characterized by a pentad-

- Micromgiopathic hemolytic anemia, thrombcytopenia, renal failure, neurologic findings, and fever.
- TTP diagnosis include an increased lactate dehydrogenase and indirect bilirubin, decreased haptoglobin, and increased reticulocyte count.
- The peripheral smear should be examined for evidence of schistocytes.

173. In which of the following diseases antineutrophil cytoplasmic antibodies(ANCA) are not found:

a) Polyarteritis nodosa

b) Microscopic polyangitis

c) Wegener granulomatosis

d) Bechet syndrome

e) Churg-Strauss syndrome

Correct Answer - A:D

Answer- (A) Polyarteritis nodosa (D) Bechet syndrome

- ANCA positive
- Wegner's granulomatosis
- Microscopic polyarteritis
- Churg's trauss syndrom e
- Renal -limited vaculitis
- (crescentric glomerulonephritis)