Hematology Module
Module Assessment Paper
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Anatomy

Q1) Blood is classified as special connective tissue as blood:

a. Is composed of cells and fibers.
b. Has fluid nature of its ground substance
c. Consists of hydroxyapatite crystals in its matrix.
d. Has a greater ratio of cells than fibers.
e. Consists of only fibers.

Q2) Which one of the following is an unencapsulated lymphatic tissue found in human body?

a. Tonsils
b. Spleen
c. Thymus
d. Lymph Node
e. Peyer's Patches

Q3) In comparison to primitive hematopoiesis, which of the following is not the feature of definitive hematopoiesis (DH)?

a. DH is Permanent.
b. DH starts in yolk sac.
c. During DH, Red blood cells do not have the nuclei.
d. During DH, many types of white blood cells are produced.
e. DH begins in fetal life

Q4) A biopsy specimen of Thymus from an old man is examined under the microscope and many whorl-like corpuscles are observed. Following statement truly matches with the above-mentioned corpuscles:

a. Have their embryological origin from mesoderm.
b. Mainly located in the thymic cortex.
c. Derived from T memory cells.
d. Composed of epithelial reticular cells Type VI
e. Frequently seen in thymus of young individuals

Embryology

Q5) If there is a defect in the structures. formed by mesoderm, which thymic cell will be affected?

a. Thymocytes
b. Epithelial reticular cells
c. Macrophages
d. Dendritic cells

e. Nurse cells

Physiology

Q 6) Which one of the following types of cells, on its own, is responsible for giving rise to all blood cells, which start their existence in the bone marrow?

a. Colony-forming unit-blast
b. Colony-forming unit-erythrocytes
c. Colony-forming unit-spleen
d. Pluripotent hematopoietic stem cell
e. Proerythroblast

Q7) Which of the following proteins stimulates the expansion and multiplication of nearly all types of stem cells?

a. Granulocyte colony-stimulating factor (G-CSF)
b. Granulocyte-macrophage colony-stimulating factor (GM-CSF)
c. Interleukin-3 (IL-3)
d. Interleukin-6 (IL-6)
e. Macrophage colony-stimulating factor (M-CSF)

Q8) Which of the following cells does erythropoietin stimulate to enhance RBC synthesis?

a. Basophil Erythroblasts
b. Colony-forming unit-erythrocytes (CFU-E)
c. Pluripotent hematopoietic stem cell (PHSC)
d. Proerythroblast
e. Reticulocyles

Q 9) Which types of cells have MHC-I molecules present on their surfaces?

a. Antibodies
b. Coreceptors
c. Processed foreign antigens
d. Processed self-antigens
e. T Cell antigens

Q10) The emergency room received a middle-aged obese doctor who complained of significant "tightness" in his left chest. Pain spread to his left arm and jaw. Four months earlier he had similar symptoms and was diagnosed with a heart attack and given Streptokinase. Based on his ECG and cardiac enzyme levels, a fibrinolytic drug was prescribed for myocardial infarction. The patient went into shock after receiving the medicine due to a hypersensitivity reaction. Which fibrinolytic agent did the patient receive this time?

a. Alteplase
b. Retaplase
c. Streptokinase
d. Tissue plasminogen activator
e. Urokinase

Q11) Which of the following terms denote the average weight of hemoglobin in individual erythrocytes?

a. Hematocrit
b. Hemoglobin index
c. MCH
d. MCHC
e. MCV

Q12) Which one of the following reactions results in the synthesis of heme molecule?
a. Ferritin + protoporphyrin
b. Ferrous + protoporphyrin IX
c. Porphyrin + alpha beta globin
d. Succinyl coA + glycine
e. Transferrin + porphobilinogen

Q 13) Two days after becoming lost in a sweltering and humid wilderness, a 40-year-old man was recovered after having walked for hours. His CBC showed increased hematocrit which of the following is a likely diagnosis?
a. Physiological polycythemia
b. Polycythemia vera
c. Primary polycythemia
d. Relative polycythemia
e. Secondary polycythemia

Q 14) The hematocrit of a person with a tumor-like disease is elevated. In such a situation, what hematocrit value would you expect to see most likely?
a. 10% above normal
b. 80% above normal
c. Less than 30%
d. More than 50%
e. More than 70%

Q 15) Which one of the following values corresponds to the percentage of haemoglobin A2 in a normal adult person?
a. 0.5 to 0.8%
b. 0.9 to 1.4%
c. 1.5 to 1.9%
d. 2.5 to 3.5%
e. 4.5 to 5.5%

Q 16) An asymptomatic 44-year-old guy is HIV positive after blood donation screening. The screening blood work showed Hemoglobin 10 g/dL, Hematocrit 30%, Leukocyte count 4600/mm3, Platelet count 15,000/mm3, Prothrombin time 12 sec (INR=1.1), and Partial thromboplastin time 23 sec. Which physical finding is most likely in this patient?
a. Deep venous thrombosis
b. hemarthrosis
c. Petechiae
d. Subungual hemorrhage
e. Visceral hematoma

Q17) High doses of rabbit antithymocyte globulin are used to treat bone marrow failure in a 44-year-old man. A fever, lymphadenopathy, arthralgias, and erythema of the hands and feet arise in him ten days later. Choose the most plausible explanation for these signs and symptoms.

a. Cytokine secretion by natural killer cells
b. Eosinophil depranulation
c. Immune complex deposition in tissues
d. Polyclonal T-lymphocyte activation
e. Widespread apoptosis of B lymphocytes

Q18) After five years of significant menstrual bleeding, a 20-year-old lady visits the doctor. Menstruation occurs every 28 days. The bleeding from a tiny finger cut took longer than normal. Her weight hasn't changed or she's bruised easily. She just uses an oral contraceptive but hasn't been sexually active for six months. Her vital signs are normal. Physical examination shows slightly pale conjunctiva.
Lab results are as follows:
Hb: 10.5g/dL
MCV: 70 fL
WBC count: 5500/mm3
Platelet count: 275,000/mm3
Platelet aggregation studies: Normal
PT: 10.5 sec (INR = 1.0)
aPTT: 28 sec
A Pap smear shows no abnormalities. Which of the following hematologic disorders is the most likely cause of this patient's menorrhagia?

a. Afibrinogenemia
b. Hemophilia A
c. Intravascular coagulation
d. Vitamin K deficiency
e. von Willebrand's disease

Q19) Which of the following features characterizes Fetal hemoglobin compared to adult hemoglobin?

a. Contains five pyrrole rings
b. Has delta polypeptide chain
c. Possesses more affinity for oxygen
d. Shows lesser oxygen content at a given PO2
e. Unloads oxygen to tissues with difficulty

Q20) After breakdown of red blood cells, which of the following proteins binds haemoglobin to be cleared by liver macrophages?

a. Bilirubin
b. Haptoglobin
c. Hemin
d. Hemopexin
e. Hepcidin

Q 21) A 5-year-old child was brought to a clinic with complaints of high-grade fever, pain in throat and difficulty in swallowing. Examination and blood test confirmed the diagnosis of acute bacterial infection of tonsils. Which one of the following cells would be increased in blood in this condition?

a. Basophils
b. Eosinophils
c. Lymphocytes
d. Mast cells
e. Neutrophils

Q22) A 6-year-old girl fell while playing and hit her head on the wall leading to trauma to the blood vessels and release of tissue thromboplastin by endothelial cells. Which of the following factors would initiate the coagulation process in this case?

a. Factor V
b. Factor IX
c. Factor VII
d. Factor XII
e. HMWK

Q23) A 68-year-old male with carcinoma of lung was put on subcutaneous heparin to prevent any intravascular coagulation. The activity of this anticoagulant is increased when it combines with a protein. Which one of the following proteins shows this effect?

a. Antithrombin III
b. Protein C
c. Protein S
d. Thrombomodulin
e. Von Willebrand factor

Q24) A young woman walks in claiming to be exhausted and short of breath when she tries to do anything. She has a respiratory rate of 18 breaths per minute and is quite pale. Haemoglobin is 10 g/dL according to the lab results. What is the approximate amount of oxygen that is transported by each one hundred milliliter of her blood?

a. 8 mL
b. 10 mL
c. 13 mL
d. 15 mL
e. 20 ml

Q 25) The OPD sees a young man with a 5-day fever and body aches. He has a stable blood pressure, 103° C temperature, 110 beats/min pulse, and 20 breaths/min respiration. His WBC count was 2500/L. Which reflects his condition best?

a. Leukemia
b. Leukemoid reaction
c. Leukocytosis
d. Leukopenia
e. Leukoplakia

Q 26) A 24-year-old media sciences student presented with exhaustion, nausea, and vomiting for one week. She also had low-grade fever. She visited the OPD after observing yellow skin and sclera (jaundice). Abdominal examination revealed right upper abdominal discomfort. Her liver tests were abnormal. She was diagnosed with Hepatitis A after testing. Which immunity will she build from her acute viral infection?

a. Artificial active immunity
b. Artificial passive immunity
c. Innate immunity
d. Natural active immunity
e. Natural passive immunity

EXTENDED MATCHING QUESTIONS:
Answer questions 27 to 31 from the options given below:
Options:

a. Aplastic anemia
b. Iron deficiency anemia
c. Liver disease
d. Sickle cell anemia
e. Thalassemia

Q27) Breathlessness brought a 27-year-old Ethiopian to the OPD. He had a high heart rate and pale oral mucosa and conjunctiva, His Initial blood tests showed 7.8g/dL Hemoglobin and 65fL MCV. The doctor advised Iron studies which were normal. What could be the diagnosis?

Q 28) What could be the potential cause of anemia in a 25-year-old male patient who visited the outpatient department (OPD) due to complaints of shortness of breath at rest, with normal chest auscultation and no visible signs of lung disease on X-ray, but with a low hemoglobin value and an MCV of 105fl based on his blood tests. Multisegmented nuclei were not seen in his neutrophils?

Q29) A feverish manufacturing worker who looks sick and tired also complains of bleeding from the nose and gums. The laboratory findings show that the patient has low levels of Hemoglobin, white blood cells, and platelets, as well as a low reticulocyte count and a Mean corpuscular volume of 88 FL. What could be the potential diagnosis?

Q30) If a 24-year-old Indian arrived to the emergency hospital with severe chest and back pain that started three hours earlier while he was ascending a mountain and was short of breath, and he had identical symptoms several years earlier. Lab tests show that Hb is 10g/dL, TLC is 12,000/mm3, MCV is 87fL, and reticulocytes are 25%. What could be his diagnosis?

Q 31) Joint pain brought a 65-year-old woman to the orthopedic department. Her doctor diagnosed her with osteoarthritis and osteoporosis. She received NSAIDs, calcium, and vitamin D. She returned after six months on the same meds, pale and short of breath. Her MCV was 73 fLy and hemoglobin was 9 g/dL. What could be the cause of low hemoglobin?

Q32) Elevated concentration of lactate in the plasma is associated with:

a. Exercise-induced muscle fatigue
b. Dehydration
c. Iron deficiency anemia
d. Myocardial infarction
e. Vitamin D deficiency

Q33) Most of the body's iron is contained in the form of:

a. Myoglobin in muscle
b. Ferritin in reticuloendothelial system
c. Transferrin in plasma
d. Hemosiderin in reticuloendothelial system
e. Hemoglobin in RBC

Q34) When interpreting an iron profile, parameter that is most reliable indicator of iron deficiency is:

a. Serum iron levels
b. Total iron-binding capacity
c. Ferritin levels
d. Transferrin saturation
e. Serum Hepcidin

Q35) C-reactive protein, a plasma protein that belongs to a class of:

a. Acute-phase protein
b. Clotting protein
c. Defense protein
d. Secretory protein
e. Transport protein

Q36) First bile pigment produced in catabolism of Haem molecule is:

a. Bilirubin
b. Biliverdin
c. Cholic acid
d. Deoxy cholic acid
e. Lithocholic acid

Q37) Five different classes of antibodies have different properties because of difference in

a. Heavy chains
b. Light Chains
c. N terminal domain
d. Antigen binding site
e. Di-sulfide bonds

Q38) Which of the following antibodies exist as a pentamer?

a. IgG
b. IgM
c. IgA
d. IgE

e. IgD

Q39) Net yield of ATP molecules produced by the glycolysis of one glucose molecule in RBCs is:

a. 0 ATP
b. 1 ATP
c. 2 ATP
d. 6 ATP
e. 36 ATP

Q 40) The form of vitamin K that is required for activation of clotting factors is:

a. Dimenadione
b. Menadione
c. Menaquinone
d. Phylloquinone
e. Hydroquinone

Q 41) A 12-year-old boy was brought to a dermatologist as he had developed vesicles and bullae on his face and arms that appeared after week-long football practice in the sun. His father had a similar condition. A diagnosis of Porphyria cutanea tarda was confirmed by finding elevated levels of porphyrins in his serum. His disease is due to a deficiency of:

a. ALA dehydratase
b. Ferrochelatase
c. PBG deaminase
d. Uroporphyrinogen decarboxylase
e. ALA synthase deficiency

Q42) The plasma proteins electrophoresis shows two major protein electrophoretic bands, one is for Albumin whereas Globulin further gives different fractions.
These are a1 globulins, a 2 globulin, B 1 globulin, B 2 globulin, and y globulins. Protein present in the y globulin fraction is:

a. Transthyretin
b. Haptoglobin
c. Ceruloplasmin
d. Immunoglobulins
e. Acid glycoprotein

Pathology

Q43) The most characteristic feature of granulation tissue is:

a. Resemblance to granuloma
b. Growth Of Fibroblasts And New Capillaries C.
c. Presence Of Neutrophils And Macrophages
d. Presence Of Exudate
e. Presence Of Monocytes And Fibroblast

Q44) A 41-year-old man who is a factory worker, the factory produces plastic pipe. He came into medical OP with complaints of weight loss, nausea, and vomiting for 5 months. On

physical examination, he has tenderness to palpation in the right upper quadrant of the abdomen, and hepatomegaly was found. An abdominal CT scan shows a 12 cm mass in the right lobe of the liver. A liver biopsy is performed, and a microscopic examination shows an angiosarcoma. The patient has most likely been exposed to which of the following agents?

a. Arsenic
b. Asbestos
c. Benzene
d. Beryllium
e. Vinyl chloride

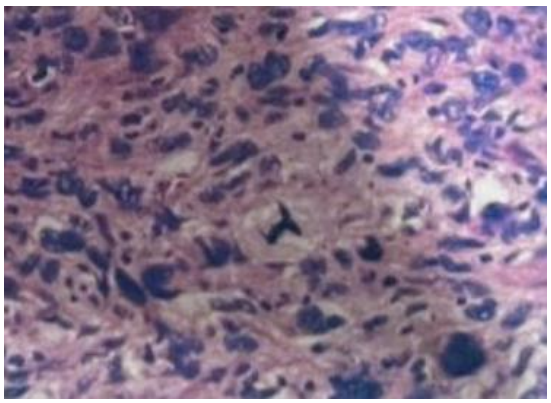
Q45) A 18-year-old man, has noted a palpable mass on theright side of his neck for 6 months: On physical examination, there is a 2-cm, firm, non-tender nodule involving the right lobe of the thyroid gland. Biopsy specimens of the nodule show features consistent with carcinoma of the thyroid. No positive family history was found. Which following stem is relevant in the woman's past medical history?

a. Chronic alcoholism
b. Ataxia telangiectasia
c. Radiation therapy in childhood
d. Blunt trauma from a fall
e. Exposure to arsenic compounds

Q46) A 52-year-old man noted a darkly pigmented "mole" on the back of his hand.now lesion gradually enlarged and bled spontaneously during the past month. On examination, there is a slightly raised, darkly pigmented, 1.2-cm lesion on the dorsum of the right hand. The lesion is completely excised. Microscopically, malignant melanoma is diagnosed. Which of the following factors is associated with the greatest risk for the development of this neoplasm?

a. Smoking tobacco
b. Ultraviolet radiation
c. Chemotherapy
d. Asbestos exposure
e. Allergy to latex

Q47) A 58-vear-old woman has experienced an increasing feeling of fullness in the neck for the past 3 months, and she has noted a 3-kg weight loss during that time. On physical examination, there is a firm, fixed mass in a 3 × 5 cm area on the right side of the neck. A biopsy of the mass is performed; the microscopic appearance of the specimen is shown in the figure. All areas of the tumor have similar morphology. Which of the following terms best describes this neoplasm?



a. Adenoma
b. Well-differentiated adenocarcinoma
c. Squamous cell carcinoma
d. Leiomyoma
e. Anaplastic carcinoma

Q48) Malignant neoplasm can be categorised as Carcinomas and Sarcomas, the given explanation best corresponds to which one of the following.
Which of the following statements described carcinoma?

a. Arising exclusively from the cells of ectodermal origin
b. Arising exclusively from the cells of mesodermal origin
c. Arising exclusively from the cells of endodermal origin
d. Arising from sheets of solid mesenchyme
e. Arising exclusively from the epithelium

Q49) A 26-year-old woman has a lump in her left breast. On physical examination, the physician finds an irregular, firm, 2 cm mass in the upper inner quadrant of the breast. A fine-needle aspirate of the mass shows carcinoma. The patient's 30 year old sister was recently diagnosed with ovarian cancer, and 3 years ago her maternal aunt was diagnosed with ductal carcinoma of the breast and had a mastectomy. Which of the following genes is most likely to have undergone mutation to produce these findings?

a. BCL2 (anti-apoptosis gene)
b. BRCA1 (DNA repair gene)
c. EGF (epidermal growth factor gene)
d. ERBB2 (growth factor receptor gene)
e. HSTI (fibroblast growth factor g)

Q50) Which is the gold standard test for the lab diagnosis of Malaria

a. Microscopy (Thick/thin blood smears.)
b. Polymerase chain reaction (PCR)
c. Molecular diagnosis
d. Antibody detection
e. Immuno/biochemical detection

Q51) A 1st year medical student developed pneumonia and was in the hospital for a week. 2 weeks after discharge, he developed a fever and began coughing up thick, whitish,

foul-smelling sputum. CT scan chest showed a localized collection of thick fluid in the lung. How would you best describe the outcome of acute inflammation in this patient?

a. Abscess formation
b. Fibrosis
c. Granuloma formation
d. Resolution
e. Ulcer formation

Q52) You go on a trip to Hunza Valley. You sprain your ankle while hiking there and it becomes inflamed. Which of the following statements regarding this type of inflammation is correct?

a. Characterized by the formation of granulomas.
b. Characterized by heat, redness, pain, and swelling.
c. Characterized by granulation tissue formation.
d. Cellular infiltrate comprises macrophages and lymphocytes.
e. Resolves within 24 hours.

Q53) A 1st year medical student falls down some stairs and bangs his head. He develops a large bump at the site of injury. X-rays reveal no fracture. Which of the following statements is correct regarding his injury?

a. Colloid osmotic pressure will be decreased resulting in edema and bump formation
b. Increased hydrostatic pressure is responsible for the bump
c. The bump is due to fluid that has a high protein content
d. The permeability of blood vessels is decreased in this case
e. Vascular endothelial cells are unaffected in this type of injury

Q 54) A 2-year-old boy cut his finger with a blade while playing with a razor. A few seconds after the injury, the bleeding stops. Which of the following mechanisms is most likely to reduce blood loss from a small dermal arteriole?

a. Protein C activation
b. Thrombin activation
c. Platelet aggregation
d. Coagulation factors activation
e. Vasoconstriction

Q 55) A 65-year-old man was diagnosed with constrictive pericarditis 2 years after suffering trauma to the heart. When he died, an autopsy was performed. The heart was found encased in a thickened, fibrotic pericardium. The pericardium was attached to the heart by stringy material and was difficult to remove. What type of inflammation did this patient have in his pericardium?

a. Catarrhal
b. Fibrinous
c. Purulent
d. Serous
e. Ulcerative

Q56) You have been treating an elderly lady for pain and inflammation in horioints for the past 2 years. Which of the following statements regarding this patient's inflammation is true?

a. Abscess formation is a hallmark
b. Always follows acute inflammation
c. Characterized predominantly by a neutrophilic infiltrate
d. Inflammation, tissue injury, and attempts at repair all co-exist
e. May result in granulomas composed at epithelial cells and blood vessels

Q57) A 4-year old child accidentally tips over a pot of boiling water onto his hands. His hands become red and develop multiple blisters. Which of the following terms best describes the type of inflammation?

a. Fibrinous
b. Granulomatous
c. Serous
d. Suppurative
e. Ulcerative

Q58) A 65-year-old man has a 5-year history of osteoarthritis. Which of the following statements is correct regarding this patient's inflammation?

a. Alternatively activated macrophages promote tissue repair
b. A biopsy will show a neutrophilic exudate with pus formation
c. Cytokines and growth factors have no role in this type of inflammation
d. Granuloma formation is a constant feature in these patients
e. Plasma cells and B lymphocytes are almost never found

Q59) Which statement best describes autosomal Dominant disorders?

a. Disease in homozygous state
b. Reduced penetrance and variable expressivity
c. Onset usually early in life
d. New mutations early detected clinically.
e. Protein shows loss of function.

Q60) An affected male does not transmit the disorder to his sons, but all daughters are carriers. This statement best corresponds to which pattern of inheritance?

a. Autosomal dominant
b. Autosomal recessive
c. X linked recessive
d. X linked Dominant
e. Sex chromosome abnormality

Q61) A 1st-year medical student undergoes a routine complete blood count which reveals an abnormality in the differential leucocyte count. She complains of excessive sneezing and watering of her eyes for the past month and reports that she experiences this every year during spring and summer. Which of the following cell types is most likely to be increased?

a. Basophils
b. Eosinophils
c. Lymphocytes
d. Monocytes
e. Neutrophils

Q62) A 34-year-old man complains of epigastric pain for the past 3 months that has worsened over time. Endoscopy shows a shallow sharply demarcated ulcer in the gastric antrum. Biopsy of the ulcer shows infiltration by lymphocytes, macrophages, and plasma cells along with granulation tissue formation and fibrosis. Which of the following terms best describes the type of inflammation?

a. Acute
b. Chronic
c. Fibrinous
d. Granulomatous
e. Serous

Q63) You accidentally cut your finger while chopping vegetables. Your finger becomes red, swollen and painful. What changes are likely taking place at a microscopic level?

a. Decreased blood flow
b. Formation of granulation tissue
c. Granuloma formation with giant cells
d. Increased vascular permeability
e. Mononuclear cell infiltration

Q64) The classical pathway of complement activation is initiated by:

a. Antigen-antibody complexes.
b. Binding of mannose-binding lectin (MBL) to microbial surfaces
c. Breakdown of C3
d. Activation of C3 convertase
e. Binding of C-reactive protein (CRP) to microbial surfaces

Q65) The membrane attack complex (MAC) formed during complement activation consists of:

a. C1, C2, and C4 and C6
b. C1, C3b and C4b
c. C3a, C3b and C5b
d. C5a and C5b
e. C5b, C6, C7, C8 & C9

Q66) Which complement component is the culminating point of all three complement pathways?

a. Formation of C1
b. Breakdown of C3
c. Formation of C4
d. Joining of C5 and C6
e. Breakdown of C6

Q67) Complement deficiencies can lead to an increased risk of:

a. Autoimmune diseases
b. Allergic reactions
c. Bacterial infections
d. Hypergammaglobulinemia
e. Hypersensitivity

Q68) The major histocompatibility complex (MHC) is involved in:

a. Blood clotting
b. Hormone regulation
c. Transplant rejection
d. Neurotransmitter release
e. Muscle contraction

Q69) Sterilization refers to the process of:

a. Removing visible dirt from a surface
b. Killing or removing all forms of microbial life
c. Reducing the number of microorganisms to a safe level
d. Inactivating viruses on a surface
e. Killing bacteria but not viruses

Q70) The most resistant form of microbial life to physical and chemical agents is:

a. Bacterial endospores
b. Fungal spores
c. Protozoan cysts
d. Gram-negative bacteria
e. Viruses

Q71) The term "bactericidal" refers to agents that:

a. Inhibit bacterial growth.
b. Kill bacteria
c. Prevent bacterial attachment.
d. Inactivate bacterial toxins.
e. Remove bacteria from the surface.

Q72) Protein C is a natural anticoagulant that inhibits the process of coagulation by proteolytic destruction of

a. Activated FV and FVIII
b. Activated FVII
c. Activated FX
d. Activated FII
e. Activated FXII

Q73) A 19-year old woman came into medical opd with a history of frequent nosebleeds and increased menstrual flow. On physical examination, petechiae and purpura are present on the skin of her extremities. Laboratory studies show normal partial thromboplastin time (APTT), prothrombin time (PT), platelet count, and decreased von Willebrand factor activity. This patient most likely has a derangement in which of the following steps in hemostasis?

a. Vasoconstriction
b. Platelet adhesion
c. Platelet aggregation
d. Prothrombin generation
e. Prothrombin inhibition

Q74) After the blood vessel injury, the role of platelet includes all of the following except

a. platelet adhesion
b. platelet activation
c. platelet aggregation
d. converts the fibrinogen to fibrin
e. secretion of granules

Q75) A 45-vear-old woman who works while standing for long periods notices at the end of her 8-hour shift that her lower legs and feet are swollen, although there was no swelling at the beginning of the day. There is no pain or erythema associated with this swelling. She is otherwise healthy and takes no medications, laboratory testing reveals normal liver and renal function. Which of the following mechanisms best explains this phenomenon?

a. Excessive free water intake
b. Hypoalbuminemia
c. Increased hydrostatic pressure
d. Lymphatic obstruction
e. Secondary aldosteronism

Pharmacology

Q 76) A 20-year-old woman presents to her primary care physician with heavy menstrual bleeding. Her physician prescribes tranexamic acid. What is tranexamic acid's mechanism of action?

a. Activates plasminogen
b. Activates platelets
c. Blocks cyclooxygenase
d. Inhibits plasmin
e. Suppresses LH surge

Q77) A 23-year-old pregnant woman has macrocytic anemia, an increased serum concentration of transferrin, and a normal serum concentration of vitamin B12, the most likely cause of her anemia is deficiency of which of the following?

a. Cobalamin
b. Erythropoietin
c. Folic acid
d. Intrinsic factor
e. Iron

Community Medicine

Q 78) A medical study is conducted to estimate the prevalence of Hypertension amongst a defined population and evaluate people of different ages, ethnicities, geographical locations, and social backgrounds. Which one of the following options best describes the type of study design most appropriate for the above study?

a. Case- Control
b. Case series
c. Cohort
d. Correlational
e. Cross- sectional

Q79) In a study that began in 2001, a group of 3500 adults in Islamabad were asked about alcohol consumption. The occurrence of cases of liver cancer between 2018- 2023 was studied in this group. What is the above study design?

a. Case- Control
b. Case series
c. Cohort
d. Correlational
e. Cross- sectional

Q80) In a small study, 12 women with ovarian cancer and 12 women with no apparent disease were contacted and asked whether they had ever used estrogen. Each woman with cancer was matched by age, race, weight, and parity to a woman without disease. Identify the study design.

a. Case- Control
b. Case Report
c. Cohort
d. Cross- sectional
e. Ecological

Q81) In a research paper the following line is written: "To assess the frequency of mood disorders among medical students of Karachi." Which one of the following options best describes the statement in the above scenario?

a. Hypothesis
b. Objective
c. Operational definitions
d. Rationale
e. Topic

Q82) A group of medical students started research about the health issues and quality of life of commercial sex workers. For this purpose they needed to go to various unsuitable places. They spent a year trying to collect data but enrolled a dozen participants. They became discouraged and left the study altogether.
Which one of the following options best describes the factor ignored by the students while deciding the research topic?

a. Economics
b. Feasibility
c. Magnitude
d. Politics
e. Preventability

Q83) "Like cases should be treated as like, and the benefits and the risks associated with research must be allocated equitably across patients," Which one of the following options best expresses this principle of medical ethics?

a. Autonomy
b. Equality
c. Beneficence
d. Justice

e. Non- Maleficence

Q84) A researcher of a new drug trial informed the volunteers about the possible benefits of a new drug under trial in that study. She deliberately laid more emphasis on the possible benefits of the drug under trial and avoided discussion of the possible adverse effects of the drug to enrolled participants to increase participation. Which one of the following options identifies the central ethic lacking in the above scenario?

a. Confidentiality
b. Informed consent
c. Justice
d. Non- maleficence
e. Beneficence

Q85) In a normal distribution curve the shaded area under the curve with +- 1 SD (plus minus one standard deviation around the mean) on either side of the mean value represents what percentage of the normal distribution curve?

a. 13%
b. 27%
c. 45%
d. 50%
e. 68%

Q86) The occurrence of disease in a community or region of cases of an illness with a frequency clearly in excess of normal expectancy is called

a. Epidemic
b. Endemic
c. Exotic
d. Pandemic
e. Sporadic

Q87) The disease causation model that can be used for explaining the mechanism of chronic diseases occurrence like diabetes, heart disease with multiple risk factors is:

a. Determinants of Disease
b. Dynamics of disease transmission
c. Epidemiological triangle
d. Web causation
e. Wheel

Q88) In a screening test for diabetes Mellitus a cut off value of 105mg/dl is used for FBS (Fasting Blood Glucose). The cut off value is later decreased to 100mg/dl. Which one of the following options best identifies the impact on validity in the above scenario when cut off value is lowered?

a. Sensitivity will decrease
b. Specificity will decrease
c. Specificity will increase
d. Sensitivity will increase and Specificity will decrease.
e. Specificity will increase and Sensitivity will decrease.

Behavioural Sciences

Q89) A 25 years old male patient, presented with a history of irrelevant talks, anger suspicious towards family members, had a big fight with the family last and injured the younger with an iron rod. He has been brought to you for the management purpose. Which of the following would you consider before initiating an interview with him?

a. Talk to the family and ask them to leave the patient alone
b. Talk to the security guard and restraint the patient forcefully
c. Inquire about any danger objects with the patient
d. Ask the staff to hold the patient and sedate him immediately
e. Wait for the patient's violent reaction to happen in the ward

Q90) During the case discussion in the ward, you noticed that the safety of your junior doctor is not appropriate for which she is going to take psychiatric history from a violent patient. What would you advise to your junior doctor?

a. Reassure your junior doctor and ask her to take a complete history.
b. Ignore the family's account of the patient and his violent acts.
c. Safety is not important as compared to patient's illness.
d. Postpone the interview until all safety measures have been ensured.
e. Wait for 72 hours to take the history from the patient.

Medicine

Q91) A 22 year male presented to OPD with a complaint of swelling at neck region for 10-12 days. He does not give any history of flu or sore throat. Examination revealed right anterior cervical lymph nodes, about 1.0 cm in size. Soft non tender and mobile i.e. not fixed. Spleen is also enlarged. No other positive finding. What should be the next step in the management of this patient?

a. Antibiotic / antivirals
b. Lymph nodes biopsy
c. Observe the patient for 3-4 weeks
d. Re-assure patient and send him home
e. Send viral serology / VDRL / PCR

Q92) Hemostasis is the natural process that stops blood loss when an injury occurs. It involves three steps that occur in a rapid sequence.
1. Primary hemostasis
2. Secondary hemostasis
3. Fibrinolytic protein system
Which of the following bleeding manifestations or associations suggest secondary hemostatic disorder?

a. Epistaxis
b. Hemarthrosis
c. Bruising
d. Mucocutaneous bleed
e. Distensible skin and lax joints

Q93) A 65 year old male presents with a 2 months history of fever, lethargy, and night sweats. On physical examination, she has palpable cervical and axillary lymph nodes. Spleen is palpable 2 cm below the left costal margin. Which of the following is the most likely diagnosis?
The given explanation best corresponds to which one of the following

a. Viral Fever
b. Lymphoma
c. Metastatic cancer
d. Chronic malaria
e. Chronic myeloid leukemia

CBL

A 62-year old woman complains of fatigue and numbness of her arms and legs for 1 month. She has a history of hypothyroidism and takes thyroid replacement therapy. She has a long history of diarrhoea on and off. A complete blood count (CBC) shows white blood cells (WBC) 3.8x109/L (normal: 4.0 to 11 x 109/L), hemoglobin (Hb) 8g/dL (normal: 12 to 16g/dL), hematocrit (Hct) 27 percent (normal: 36 to 46 percent), mean corpuscular volume (MCV) 120 fL (normal: 80 to 100fL), and platelets 115x109/L (normal: 150 to 400x109/L).

Q94) Which morphological changes in peripheral film are expected to be seen in this patient?

a. Hypersegmented neutrophils, ovalocytes
b. Macrocytic and hyposegmented neutrophils
c. Macrocytic with tear drop poikilocytes
d. Macrocytic with tear drop poikilocytes
e. Marked anisocytosis with normal looking WBCs

Q95) Which of the following autoantibodies is most likely to be present in this patient?

a. Anticentromere antibodies
b. Antigliadin antibodies
c. Anti-intrinsic factor antibodies
d. Antimitochondrial antibodies
e. Antismooth muscle antibodies

Q96) Which statement regarding this case is expected to be correct?

a. Bone marrow will be hypercellular
b. Reticulocyte count will be increased
c. Serum iron will be reduced
d. Serum Vitamin B12 will be increased
e. TIBC will be increased

Q97) Considering the history of this patient, what is the most likely cause of her illness?

a. Decreased folate intake
b. Decreased iron intake
c. Increased requirement in old age
d. Strict vegetarian diet
e. Vitamin B12 Malabsorption

Q98) The given CBC shows a cell count value of 3.8×109/L, which one of them is capable of phagocytosis?

a. Basophills
b. Eosinophils
c. Lymphocytes
d. Neutrophils
e. Reticulocytes

Q 99) Looking at the above scenario, which of the following types of anemia does this patient have?

a. Aplastic anemia
b. Megaloblastic anemia
c. Sickle cell anemia
d. Sideroblastic anemia
e. Thalassemia

Q100) Possible nutritional deficiency that can have same RBCs presentation is of:

a. Folic acid
b. Iron
c. Copper
d. Vit K
e. Vit D