1) Plasma proteins perform which function? a. They exert an osmotic pressure. b. They change blood PH. c. They decrease plasma viscosity. d. They decrease body defense mechanisms. e. They increase capillary permeability.	**A**
2) Which of these plasma proteins has the highest concentration? a) Alpha globulins. b) Fibrinogen. c) Albumin. d) Prothrombin. e) Beta globulins.	**C**
3) What is the normal range of serum albumin? A) 1.5-2.5 g/dl. B) 2.5-3.5 g/dl. C) 3.5-5.5 g/dl. D) 5.5-7.5 g/dl. E) 7.5-9.5 g/dl.	**C**
4) Which of the following is responsible for 70-80% of blood osmotic pressure? a) alpha 1 globulins. b) Alpha 2 globulins. c) Beta globulins. d) Albumin. e) Fibrinogen.	**D**
5) What is the normal level of total Plasma proteins? a) 3.5-5 g/dl b) 5-5.5 g/dl c) 7-7.5 g/dl d) 7-7.5 mg/dl e) 9-9.5 g/dl	**C**

6) Which of the following proteins is present in gamma globulin fraction? a. Haptoglobin. b. Immunoglobulin. c. C-reactive protein. d. Transferrin. e. ceruloplasmin.	**B**
7) Albumin is synthesized in: a) RBCs b) Liver c) Plasma cells d) Lymphoid tissues e) Kidneys	**B**
8) y globulins are synthesized in: a) RBCS b) Liver c) Lymphoid tissues d) Kidneys e) Muscles	**C**
9) Which of the following plasma proteins is a clotting facior? a) al globulin b) a2 globulin c) ß globulin d) albumin e) fibrinogen	**E**
10) **What is the primary function of γ -globulins**? A) Transport of lipids B) Immune defense C) Blood clotting D) Transport of iron	**B**

11) Which of the following is a hemostatic function of blood? a) Transporting nutrients b) Stopping bleeding when a blood vessel is injured c) Defending against microorganisms d) Maintaining body temperature	**B**
12) Which function of blood involves keeping the internal environment constant? a) Transport function b) Hemostatic function c) Homeostatic function d) Defensive function	**C**
13) Which plasma protein is primarily responsible for blood viscosity? a) Albumin b) Gamma globulins c) Fibrinogen d) Hemoglobin	**C**
14) What is the primary function of fibrinogen and prothrombin in the blood? A) Oxygen transport B) Blood coagulation C) Immune response D) Nutrient transport	**B**
15) What role do plasma proteins play in controlling capillary permeability? A) They increase the size of capillary pores B) They block capillary pores partially C) They have no effect on capillary permeability D) They dissolve capillary walls	**B**

1) Which of the blood cells have the shape of biconcave disc? a. Neutrophils. b. Platelets c. Lymphocytes. d. Red blood cells. e. Eosinophils.	**D**
2) What is the first line of defense against bacterial infections? a. Basophils. b. Neutrophils. C. Eosinophils. d. Monocytes. e. Lymphocytes.	**B**
3) Erythropoiesis means the development of: a) Red bleed cells. b) Lymphocytes c) Monocytes d) Basophils e) Eosinophils	**A**
4) Decreased hemoglobin level is called: a) leucopenia b) Polycythemia c) Thrombocytopenia d) Anemia	**D**
5) Main Site of erythropoiesis in middle age is: a) Red bone marrow b) Amniotic cavity c) Yolk sac. d) Lymph nodes e) Lung	**A**

6) Erythropoiesis: a) HB formation is the first step in it. b) Occurs in yellow bone marrow. c) Means the development of platelets. d) Is stimulated by erythropoietin	**D**
7) Decreased Leucocytes count. a. Leucopenia b. Anemia d. Leukocytosis c. Thrombocytopenia e. Thrombocytosis	**A**
8) Decreased hemoglobin: a. Leucopenia b. Anemia c. Leukocytosis c. Thrombocytopenia e. Thrombocytosis	**B**
9) Decreased platelets:- a. Leucopenia b. Anemia c. Leukocytosis d. Thrombocytopenia e. Thrombocytosis	**D**
10) Increased platelets: a. Leucopenia b. Anemia c. Leukocytosis d. Thrombocytopenia e. Thrombocytosis	**E**

11) Increased Leucocytes count:- a. Leucopenia b. Anemia c. Leukocytosis d. Thrombocytopenia e. Thrombocytosis	**C**
12) Erythrocytes, A. contain no enzymes. B. are responsible for blood viscosity. C. have life span about 2 months. D. hemoglobin can't help in CO2 carriage. E. have large amount of mitochondria	**B**
13) Which of the following conditions is NOT accompanied with polycythemia? A. Tumors of the kidney. B. Congestive heart failure. C. Advanced liver disease. D. High altitudes. E. Chronic obstructive pulmonary disease.	**C**
14) Megaloblastic anemia can be caused by: a) folic acid deficiency. b) iron deficiency. c) chronic renal failure. d) living at high altitude. e) glucose 6 phosphate dehydrogenase deficiency.	**A**
15) Which of the following are important effector cells in allergic reaction a) Basophils B) Dendritic cells C) Lymphocytes D) Macrophage E) Monocytes	**A**

16) What is the site of yellow (inactive) bone marrow? a) Bones of fetus. b) Clavicle. c) Sternum d) Ribs and vertebrae. e) Shafts of long hones	**E**
17) What is the main site of erythropoietin hormone formation in adult life? a) Adrenal gland b) Bone marrow c) Kidney d) Liver e) Pituitary gland	**C**
18) Why healthy liver is essential for normal RBCs formation? a) Because it is the site of destruction of old RBCs. b) Because it is the site of formation of 90% of erythropoietin. c) Because it is the site of formation of the heme part of hemoglobin. d) Because it is the site of storage of iron and vitamin B12. e) Because it is the site of synthesis of cobalt and androgen.	**D**
19) Which of the following is NOT a cause of anemia? A) Blood loss B) Excessive production of RBCs C) Deficiency of vitamin B12 D) Lack of functioning bone marrow	**B**
20) What is the normal range of white blood cells (leukocytes) per mm^3? A) 2000 - 5000 B) 4000 - 11000 C) 5000 - 15000 D) 10000 - 20000	**B**

21) Which type of anemia is caused by a deficiency of vitamin B12 or folic acid? A) Hemolytic Anemia B) Aplastic Anemia C) Megaloblastic Anemia D) Blood loss Anemia	**C**
22) Why are red blood corpuscles (RBCs) not considered true cells? A) They lack hemoglobin B) They have no nuclei C) They are too small D) They are not produced in the bone marrow	**B**
23) What is the normal range of RBCs in an adult male per mm^3? A) 4.5 - 5 million B) 5 - 5.5 million C) 6 - 8 million D) 3.5 - 4.5 million	**B**
24) Why do persons living at high altitudes have a greater number of RBCs? A) Due to high oxygen levels B) Due to low oxygen levels C) Due to increased bone marrow activity D) Due to genetic factors	**B**

1) Vitamin K dependent coagulation factors are: a. Factor II, VII, IX and X. b. Factor XII and XI. c. Factor VIII and XI. d. Factor III, VIII and XI. e. Factor XI and XII.	A
2) What convert fibrinogen into fibrin? a- prothrombin b- thrombin c- thromboplastin d- HMW kininogen e- calcium	B
3) For someone having a coronary thrombosis (blockage of a coronary artery by a blood clot), which of these chemicals is the most effective to inject? A) histamine B) thrombin C) thromboxane D) streptokinase E) prostaglandins	D
4) The maintenance of blood fluidity depends on all the following except: a- smooth intact vascular endothelium b- presence of heparin and antithrombin Ill c- absence of plasminogen d- Presence of Thrombodulin e- intact fibrinolytic system	C
5) Which of these can dissolve blood clot? a. heparin. b. plasminogin. c. plasmin. d. dicumarol. e. thrombin.	**C**

6) Reduces platelet aggregation by decreasing thromboxane synthesis: A . Heparin B . Urokinase C. Aspirin D. Vit K E. Warfarin	C
7) Thrombolytic agent synthesized in the kidney: A . Heparin B . Urokinase C. Aspirin D. Vit K E. Warfarin	B
8) Which must heparin bind to in order to exert its anticoagulant effect? A. GP IIb/Illa receptor. B. Thrombin. c. Antithrombin Ill. D. von Willebrand factor E. P2Y. ADP receptor	C
9) Which factor activates the conversion of prothrombin to thrombin? A. Factor Xa B. Factor III C. Factor VIII D. Factor IXa E. Factor Xia	A
10) Mechanism of aspirin action is: A. converting inactive plasminogen into active plasmin B. inhibiting COX and thus thromboxane synthesis C. enhancing the interaction between antithrombin Ill & both thrombin & the factors involved in the intrinsic clotting cascade D. inhibiting the glycoprotein 1Ib/llla complex E. inhibiting thrombin directly	B

11) Which of the following clotting factor is released from damaged tissue, and initiates a chain of clotting events? A) Fibrin. B) Fibrinogen. C) Prothrombin. D) Thrombin. E) Tissue thromboplastin	E
12) A condition of heredity deficiency of coagulation is called: a) anemia. B) hemophilia. c) hemolysis. D) leukemia. E) Polycythemia	B
13) Which chemical produces vasoconstriction of injured blood vessel? a) Fibrin stabilizing factor b) Plasmin c) Platelets F3 d) Stuart prewar factor e) Thromboxane A2	E
14) Which factor potentiates (increases) platelet adhesion? a) ADP. b) Fibrin stabilizing factor. c) Thromboxane A2. d) Tissue factor. e) Von Willebrand factor.	E
15) What is the normal life span of platelets? a. 1-2 days b. 8-12 days c. 30-35 days d. 1-2 months e. 8-12 months	**B**

16) A deficiency of which of the following factors causes Hemophilia? a. Factor III. b. Factor V. c. Factor VII. d. Factor VIII. e. Factor X.	**D**
17) Prothrombin level falls in blood due to lack of: a) Vit b12 b) Vit k c) Phospholipid d) Platelet e) Sodium	B
18) Which of these statements concerning clotting is false? a) Both extrinsic and intrinsic clotting pathways form prothrombin activator. b) Clots are composed mostly of plasmin. c) Clotting requires vitamin K and calcium ion. d) The extrinsic pathway is stimulated by contact with a damaged blood vessel. e) Thrombin is required for conversion of fibrinogen into fibrin.	**B**
19) The normal hemostatic response to vascular damage depends mainly on a) The red blood cells. b) Stasis of the blood flow. c) Circulating white blood cells. d) Blood coagulation factors. e) Mg++ ions.	**D**
20) Which of the following is the normal count range of platelets/mm3? a) 500,000 - 600,000 b) 150,000 - 300,000 c) 100,000 - 200,000 d) 550,000 - 650,000 e) 50,000 - 150,000	B

21) Choose the correct order for the steps of hemostasis: a) Blood coagulation, platelet plug formation, blood vessel spasm. b) Platelets plug formation, blood coagulation, blood vessel spasm. c) Blood vessel spasm, platelet plug formation, blood coagulation. d) Blood vessel spasm, blood coagulation, platelet plug formation. e) Platelet plug formation, blood vessel spasm, blood coagulation.	C
22) Which of the following ions is required for conversion of prothrombin intoactive thrombin? a) Ca++. b) Fe++. c) Mg++. d) Mn++. e) Cl-.	**A**
23) .....are necessary for clot retraction to occur. a) Red blood cells. b) Lymphocytes. c) Platelets. d) Basophils. e) Monocytes.	C
24) Normal blood clotting requires: a. Inactivation of heparin b. Inactivation of plasmin c. Inactivation of fibrin d. Calcium ion e. An adequate intake of vitamin C	**D**
25) Which of the following is a function of platelets: a) Release of heparin. b) Formation of antibodies. c) Destroying bacteria. d) Formation of plug. e) Formation of hemoglobin.	D

26) Intrinsic mechanism of blood clotting starts by activation of: a) Factor IX. b) Factor X. c) Factor XI. d) Factor XII. e) Factor XIII.	**D**
27) The final step in the clotting of blood is the conversion of: a) Prothrombin to thrombin. b) Prothrombin activator to thrombin. c) Fibrin to fibrinogen. d) Fibrinogen to fibrin.	D
28) Factor VIII is synthesized in: a. Endothelium. b. Hepatocytes. c. Kupffer cells. d. Histiocytes. e. Platelets.	**B**
29) A patient with bleeding tendency may have: A. Anemia B. Leucocytosis C. Leucopenia D. Polycythemia E. Thrombocytopenia	E
30) Plasminogen activators include the following except a- T-PA b- Streptokinase c- Urokinase d- Factor X	D

31) The coagulation time is prolonged in: a) Anemia. b) Cardiac diseases. c) Liver diseases. d) Purpura. e) Polycythemia.	C
32) **Hemorrhagic tendency in obstructive jaundice is due to**: a. Deficiency of platelets b. Increased serum bile salt concentration c. Deficiency of factor VIII d. Lack of factors II, VII, IX and X e. Deficiency of fibrinogen	D
33) Blood coagulation is inhibited by: a) Vitamin K. b) Ca++. c) Heparin. d) Thrombin. e) Tissue factor (TF).	C
34) Antithrombin III: a) Is a beta globulin. b) Is secreted by the mast cells. c) Stimulating clotting mechanisms. d) Causes clotting retraction. e) Heparin increases its activity.	E