



Test Bank



Subject:

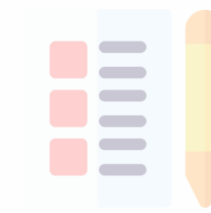
HLS-MID.018



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HLS-Mid 018

1-One of the following is NOT true in regards to tissue factor:

- a. It is found on the surface of subendothelial cells
- b. It forms a complex with factor VII
- c. It links the intrinsic and extrinsic pathways
- d. Its activity requires calcium ions
- e. It is critical in the activation of factors IX and X

2-Heparin blocks blood-coagulation by:

- a. Inducing the activity of tissue factor pathway inhibitor
- b. Activating plasminogen activation
- c. Inhibiting the release of contents of platelet granules
- d. Sequestering calcium ions
- e. Promoting the interaction of anti-thrombin III to thrombin

3-Deferasirox "Exgade" is preferable to deferoxamine in the treatment of chronic iron toxicity mainly because it is:

- a. Less toxic.
- b. Will not result in mucormycosis.
- c. Cheaper.
- d. Given orally.
- e. More effective.

4-Folic acid:

- a. Should be included in any therapeutic regimen for managing anemia.
- b. Must be given along with vitamin B12 in treating pernicious anemia.
- c. Can induce a remission of anemia of pyridoxine deficiency.
- d. Can induce a remission of pernicious anemia but allowing the neurological disease to progress.
- e. Is specific for anemia caused by *Diphyllobothrium*.

5-Which one of the following is NOT a cause of vitamin B12 deficiency?

- a. Jejunal resection.
- b. Gastrectomy.
- c. Malabsorption.
- d. Veganism.
- e. Lack of gastric intrinsic factor.

6-One of the following about iron metabolism in the body is NOT true.

- a. Iron is important for the formation of not only hemoglobin but also other essential elements in the body.
- b. The total iron quantity in the body averages 4–5 gm.
- c. There is heme iron and non-heme iron, non-heme iron is absorbed more efficiently than heme iron.
- d. The amount of iron absorbed is normally about 3–6 % of the ingested amount.
- e. The average daily iron intake is about 20 –30 mg.

7-One of the following statements about the blood is NOT true.

- a. The percentage (%) of the fetal hemoglobin in the adult RBC is normally about 1–2%.
- b. The percentage (%) of the reticulocyte cells in the bone marrow and peripheral blood is equally distributed.
- c. The bone marrow begins to produce blood cells not from the very early months of the fetal life.
- d. The fetal hemoglobin is present in every RBC in the blood.
- e. The reticulocyte cells are present in the bone marrow and peripheral blood.

8-One of the following about erythropoiesis is NOT true?

- a. All the different forms of blood cells are produced at the same time in the fetus from the first month.
- b. Even trace elements (copper, cobalt) play a role in normal erythropoiesis.
- c. The main hormone that plays a role in erythropoiesis is erythropoietin.
- d. Erythropoietin is produced by the kidneys and other organ(s).
- e. In the adult the highest erythropoiesis occurs in the vertebrae and pelvis.

9-One of the following about hemoglobin is NOT true.

- a. In one hemoglobin molecule there are four hemes and four globins subunits.
- b. The term oxygenation is used for hemoglobin binding to oxygen not oxidation.
- c. One hemoglobin molecule can bind four oxygen molecules.
- d. Binding of four heme in the hemoglobin with oxygen doesn't occur at the same time, and the affinity of the fourth heme to oxygen is many times that of the first.
- e. Globins can't bind oxygen but they bind CO, CO₂ and hydrogen.

10-With corresponding RBC morphology, one of the following is NOT true.

- a. MCV= 69 M³ (fl), MCH= 23 pg, MCHC= 32% The RBCs are microcytic and hypochromic .
- b. MCV= 90 M³ (fl), MCH= 30 pg, MCHC= 34% The RBCs are normocytic and normochromic.
- c. MCV= 67 M³ (fl), MCH= 20 pg, MCHC= 30% The RBCs are microcytic and hypochromic.
- d. MCV= 115 M³ (fl), MCH= 38 pg, MCHC= 33% The RBCs are macrocytic and normochromic.
- e. MCV= 85 M³ (fl), MCH= 26 pg, MCHC= 29% The RBCs are normocytic and hypochromic.

11–One of the following statements about Hb–O₂ relationship is FALSE.

- a. When plotted (%) saturation against P_o2, the curve will always be the same whatever the Hb concentration is, if other factors remain the same.
- b. The (%) saturations of Hb with O₂ is dependent on P_o2 as well as the Hb concentration.
- c. The (%) saturation of Hb with O₂ is dependent on P_o2 and totally independent of Hb concentration.
- d. The quantity of O₂ carried in volume of blood is dependent on the P_o2 as well as the Hb concentration.
- e. If O₂ content is plotted against P_o2, the level of the curve will be dependent on the Hb concentration of the sample of the blood.

12–The highest (%) of blood volume in an adult at rest mainly in.

- a. Veins.
- b. Lungs.
- c. Arteries.
- d. Capillaries.
- e. Heart.

13–An increased in the P₅₀ of the oxygen– hemoglobin dissociation curve occurs with

- a. A decrease in hydrogen ions.
- b. A decrease in the P_{CO}2.
- c. A decrease in diphosphoglycerate ions.
- d. Exercise.
- e. A decrease in temperature.

14–Which ONE of the following O₂ Carriers elements has higher O₂ affinity (its Hb–O₂ dissociation curve shifts to the left)?

- a. Hemoglobin A (HBA).
- b. Hemoglobin A₂.
- c. Have the same affinity.
- d. Fetal hemoglobin.
- e. Myoglobin.

15–Which one of the following about the HCT is NOT true.

- a. The value of HCT is usually 45%.
- b. The HCT expresses the (%) of red blood cells in a volume of whole blood.
- c. The values of HCT closely paralleled the values of hemoglobin & red cell count.
- d. The space occupied by the packed red blood cells is termed the hematocrit.
- e. The value of HCT does not vary with age & sex of the individual.

16-If hemophilic male gets married from hemophilic carrier female which one of the followings could NOT be the result of this marriage?

- a. All the females aren't healthy.
- b. 50% of the males they look healthy.
- c. All the children they look healthy.
- d. 50% of the females they look healthy.
- e. 50% of the females are hemophilic.

17-Blood platelets assist in arresting bleeding by; Choose the INCORRECT answer.

- a. Liberating high concentration of calcium.
- b. Releasing factors promoting blood clotting.
- c. Adhering together to form plugs when exposed to collagen.
- d. Serotonin from platelets can release vascular plasminogen activators.
- e. Releasing factors causing vasoconstriction.

18-Which one of the following about the eosinophil is NOT true.

- a. Like neutrophils, they migrate to sites of inflammation.
- b. They represent about 4% of total leukocytes.
- c. Eosinophil's number increases significantly in allergic reactions.
- d. They don't play role in wound healing.
- e. Are easy to spot because of their unique characteristic appearance.

19-Lymphocytes, choose the CORRECT statement?

- a. Are produced only in the bone marrow.
- b. Are the most abundant type of leucocytes.
- c. Are produced only in the lymphoid tissues.
- d. Are granular leucocytes.
- e. Are produced in the bone marrow & in the lymphoid tissues.

20-One of the following about blood function is NOT completely true.

- a. The patients of Covid-19 who have sufficient amount of vitamin D in the blood show lower suffering and symptoms of the corona virus infection.
- b. Regulates the blood (body) pH.
- c. Regulates the body temperature.
- d. Provides blood clotting factors.
- e. The main part of the immune system in the body are the white blood cells only.

21-Diffuse lymphatic tissue , choose the WRONG statement.

- a. Peyer's patches are composed of Lymphatic nodules with a thin underlying connective tissue capsule.
- b. M cells are intestinal epithelial cells overlying the diffuse lymphatic tissues.
- c. The basement membrane overlying lymphatic nodules of Peyer's patches is highly porous.
- d. Pharyngeal tonsils are covered by respiratory epithelium.
- e. Palatine tonsils are partly encapsulated and covered by nonkeratinized stratified squamous epithelium.

22–The presence of which one of the following cells is of least value in distinguishing spleen from thymus?

- a. Activated B cells.
- b. Fibroblasts in capsule and trabeculae.
- c. Endothelial cells with tight junctions and thick basement membranes.
- d. Reticular epithelial cells.
- e. Perisinusoidal macrophages.

23–Erythrocytes, Choose the WRONG statement.

- a. Eosinophilia of erythrocytes is due to hemoglobin.
- b. About one week is needed for the formation of erythrocytes from proerythroblasts.
- c. Erythrocytes appear electron dense and homogenous under TEM.
- d. Rouleaux formation is a reversible condition due to surface tension caused by erythrocytes biconcave surface in slow circulation.
- e. Mature erythrocytes are still capable of producing a little amount of hemoglobin.

24–Which description is true of all primary lymphoid organs?

- a. Contain crypts.
- b. Contain epithelial–reticular cells.
- c. Lack connective tissue capsules.
- d. Are sites for antigen exposure.
- e. Are capable of antigen–independent lymphopoiesis.

25–The precursor cells of granulocytes are destroyed by radiotherapy. To reestablish the granulocytic lineage, which of the following cells should be transplanted?

- a. Promyelocytes.
- b. Metamyelocytes.
- c. Promonocytes.
- d. Band cells.
- e. Myelocytes.

26-Examination of a normal peripheral blood smear reveals a cell more than twice the diameter of an erythrocyte with a C-shaped nucleus and a frosted glassy cytoplasm; Which of the following cell types is being described ?

- a. Basophil.
- b. Eosinophil.
- c. Lymphocyte.
- d. Neutrophil.
- e. Monocyte.

27-Regarding granulopoiesis, choose the WRONG statement

- a. Azurophilic granules first appear at the promyelocyte stage.
- b. Secondary granules first appear at the myelocyte stage.
- c. Metamyelocytes have kidney shaped nuclei and cannot divide.
- d. Both types of granules in granulopoietic cells are synthesized by the free ribosomes.
- e. Band cells are almost mature granulocytes but without segmented nuclei.

28-Thrombocytes, choose the WRONG statement.

- a. Microtubules and microfilaments are found in the outer marginal bundle.
- b. Have thick glycocalyx.
- c. Originate from bone marrow cells with many dynamic cell projections.
- d. Often form basophilic clumps in histological preparations.
- e. Lambda granules contain serotonin.

29-Which of the following cells express receptors for IgE on their cell surface ?

- a. Cells with spherical nuclei and scant cytoplasm.
- b. Biconcave cells with no nuclei.
- c. Multinucleated cells with irregular S-shaped nuclei and large basophilic cytoplasmic granules.
- d. Highly phagocytic cells with many basophilic cytoplasmic granules.
- e. Single nucleated cells with many basophilic cytoplasmic granules.

30-Reticulocytes, choose the CORRECT statement.

- a. Their percentage in peripheral blood is not changed in hemorrhage.
- b. Contain remnants of DNA.
- c. Contain acidophilic reticulum of polyribosomes.
- d. Have the same size as mature erythrocytes.
- e. They are stained with Brilliant cresyl blue.

31-Lymph nodes enlargement in response to bacterial infection is explained by:

- a. Increased flow of lymph through the nodes' afferent lymphatics.

- b. Arrival of antigen-presenting cells in each node's medulla.
- c. Enlargement and increased activity of the nodes' high endothelial venules.
- d. Increased thickness of each node's paracortex.
- e. Formation of germinal centers for B-cell proliferation in each node's cortex.

32-Lymphatic organs, choose the WRONG statement:

- a. Blood lymphocytes enter the spleen through marginal zone sinuses and enter the lymph nodes through postcapillary venules.
- b. Aggregations of lymphocytes occupy the majority of splenic parenchyma.
- c. The variation in color intensity of thymic lobules (cortex and medulla) is attributed to the density of thymocytes.
- d. Cells with TCR proteins that bind to MHC-1 will express CD8 proteins at the end of thymic education.
- e. PALS area in spleen and paracortex in lymph nodes are considered thymus dependent zones.

33-In spleen, the plasma cells are found mainly in?

- a. Splenic sinuses of splenic red pulp.
- b. Periarteriolar lymphoid sheathes of splenic white pulp.
- c. Primary follicles of splenic white pulp.
- d. Germinal centers of Malpighian corpuscles.
- e. Cords of Billroth of splenic red pulp.

34-The presence of which one of the following characteristics is of least value in distinguishing lymph nodes from spleen?

- a. High endothelial venules.
- b. Afferent lymphatic vessels at capsule.
- c. Lymphatic sinuses.
- d. Stromal reticular tissue.
- e. Cortical lymphatic follicles.

35-Blood formed elements, choose the wrong statement:

- a. Erythrocytes lack class 1 MHC molecules.
- b. Both basophil and mast cell are granulated but basophil nucleus is lobulated while the mast cell nucleus is round.
- c. Human thrombocytes have, in contrast to erythrocytes, never been individual nucleated cells.
- d. The internum of eosinophilic granules contains major basic protein.
- e. Most neutrophils in female peripheral blood normally show barr bodies.

36-Which one of these statements is NOT true regarding the blood circulation in the spleen?

- a. Arterial blood comes from the splenic artery which breaks up into trabecular arteries.
- b. The spleen has a unique 'open' circulation in which blood is not enclosed by endothelium.
- c. The central arteriole terminates in the marginal zone as marginal zone sinuses and forms penicillar arterioles in the red pulp.
- d. In closed circulation, blood empties from the sheathed capillaries into the splenic cords and then enters the sinuses through slits in the wall.
- e. As an individual trabecular artery emerges from the connective tissue, it is then known as the central arteriole.

37-The R form of hemoglobin is stabilized by:

- a. Electrostatic interaction between Asp of beta chain with His within the same chain.
- b. Electrostatic interaction between carboxylate of His146 with Lys of alpha chain.
- c. Electrostatic interaction between His146 of beta chain with Asp of the alpha chain.
- d. Hydrogen bond between Asn of beta chain with Asp within the same chain.
- e. Hydrogen bond between Asn of beta chain with Asp of alpha chain.

38-Prediabetes is characterized by having these lab results of glucose.

- a. 155 mg/dL or 7%.
- b. 212 mg/dL or 11.8 mmol/L.
- c. 120 mg/dL or 40mmol/mol.
- d. 9% or 11.8 mmol/L.
- e. 8% glycosylated glucose or 64 mmol/mol.

39-A carbamate is formed between CO₂ and:

- a. Arg141 of the alpha chain.
- b. His146 of the beta chain Iron of heme.
- c. The N-terminus of the alpha chain.
- d. The carboxylate end of the beta group.

40-Chloride ions move through the membrane of red blood cells in association with movement of:

- a. Bicarbonate ion in the opposite direction.
- b. Oxygen.
- c. Protons in the same direction.
- d. Bicarbonate ion in the same direction.
- e. Protons in the opposite direction.

41-2,3-bisphosphoglycerate binds weakly to fetal hemoglobin than adult hemoglobin because:

- a. The heme pocket is less hydrophobic.
- b. Fetal hemoglobin has a serine instead of a histidine 143 residue.

- c. Fetal hemoglobin has a narrower core.
- d. The lysine residue within the core of hemoglobin is replaced by a tyrosine.
- e. The N-termini of the alpha chains of fetal hemoglobin are acetylated.

42-The reason why liver is not affected by deficiency of pyruvate kinase is.

- a. ATP and NADH are compensated by other metabolic pathways.
- b. The enzyme is not regulated.
- c. Reduced activity is compensated by increased expression.
- d. Reduced activity is compensated by alternative expression of pyruvate kinase M1.
- e. Reduced pyruvate level is compensated by increase uptake of pyruvate.

43-G6PD Mediterranean is characterized by.

- a. Reduced stability of the enzyme.
- b. Reduced expression, stability, and activity of the enzyme.
- c. Reduced activity of the enzyme.
- d. Reduced expression of the enzyme.
- e. Reduced stability and activity of the enzyme.

44-Glucose is used in treating porphyries because.

- a. It prevents entry of Coproporphyrinogen III into mitochondria.
- b. Fasting induces gluconeogenesis.
- c. It leads to inhibition of ALA synthase 1.
- d. It simulates breakdown of intermediates of heme biosynthesis pathways.
- e. It blocks exit of ALA from mitochondria.

45-The most common porphyria is.

- a. Porphyria cutanea tarda.
- b. Hereditary coproporphyria.
- c. Variegate porphyria.
- d. Erythropoietic protoporphyria.
- e. Acute intermittent porphyria.

46-One of the following is true in regards to transferrin.

- a. In normal conditions, most of it is free of iron.
- b. It binds iron in the ferric state.
- c. Its binding to transferrin receptor 1 induces tighter interaction of the receptor with HFE protein.
- d. When internalized into cells, it gets degraded.
- e. It has an intrinsic oxidase activity.

47-The following does not cause an increase in expression of hepcidin.

- a. Stimulation of transferrin receptor 2.
- b. Increased release of erythroferrone.
- c. Overexpression of hemojuvelin.
- d. Increased release of inflammatory cytokines.
- e. Increased release of bone morphogenetic 5.

48-This hemoglobin variant is both a quantitative and a qualitative hemoglobinopathy.

- a. Hb Hammersmith.
- b. Hb Kansas.
- c. HbS.
- d. HbE.
- e. HbC.

49-Mutation of distal histidine into tyrosine results in.

- a. Inability to bind to methemoglobin reductase.
- b. Inability to release oxygen.
- c. Oxidation of iron.
- d. Attraction of carbon monoxide.
- e. Stabilization of the R form of hemoglobin.

50-Platelet plug is an aggregate of platelets clustered together through this mechanism.

- a. Direct interaction amongst themselves via electrostatic interactions.
- b. Fibrinogen-mediated interactions amongst themselves.
- c. Direct interaction with exposed extracellular matrix particularly collagen.
- d. Direct interaction amongst themselves via surface glycoproteins.
- e. Indirect interaction with endothelial cells via von Willebrand factor.

Answers

1	E	11	B	21	A	31	E	41	B
2	E	12	A	22	B	32	B	42	C
3	D	13	D	23	E	33	E	43	C
4	D	14	E	24	E	34	D	44	C
5	A	15	E	25	A	35	E	45	A
6	C	16	C	26	E	36	D	46	A
7	B	17	D	27	D	37	E	47	B
8	A	18	D	28	E	38	A	48	D
9	E	19	E	29	E	39	D	49	C
10	A	20	E	30	E	40	A	50	B