

## Test – Lesson 14 – Hematologic

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1. Which statements about the blood are true? (Select all that apply.)

- (A) Blood without its red blood cells, platelets, white blood cells, clotting proteins, antibodies, and lipid-carrying proteins is called “plasma.”
- (B) About 60% of the blood is made up of red blood cells, called the “hematocrit.”
- (C) Platelets in the blood are fragments of megakaryocytes.
- (D) When blood clots, it forms a fibrin mesh with trapped platelets, and red and white blood cells.

2. Which of the following statements about clotting are true? (Select all that apply.)

- (A) Fibrin is a protein snipped by thrombin from the protein fibrinogen.
- (B) Thrombin is a protein snipped by factors V and X from the protein prothrombin.
- (C) Factors V and X are activated by factor VII.
- (D) Factor VII is activated by damaged tissue.

3. Which statements about factors V and X are true? (Select all that apply.)

- (A) Factors V and X can also be activated in the intrinsic clotting system by VIII, IX, and XI.
- (B) Factors VIII, IX, and XI are activated by activated factor XII.
- (C) Factor XII is activated in the blood by the protein collagen.
- (D) Collagen activates factor XII when trauma or atherosclerosis damages blood vessels, allowing collagen in arterial walls to come into contact with factor XII in the blood.

4. Which statements about hemoglobin are true? (Select all that apply.)

- (A) Hemoglobin is made in the liver.
- (B) Hemoglobin consists of two alpha globulin proteins and two beta globulin proteins.
- (C) Each globulin protein in hemoglobin carries a heme molecule.
- (D) Each heme molecule binds two iron atoms.

5. Which statements about inhaled oxygen are true? (Select all that apply.)

- (A) Oxygen makes up about 21% of the air we breathe.
- (B) In alveoli, oxygen occupies makes up only about 13% of the air.
- (C) In alveoli, oxygen is diluted by molecules of water and carbon dioxide.
- (D) Despite the drop in oxygen concentration inside alveoli, oxygen is still able to maintain its partial pressure of about 160mm of Hg inside alveoli.

6. Which of the following statements about hemoglobin are true? (Select all that apply.)

- (A) Each hemoglobin protein carries 4 pairs of oxygen molecules (8 total) to peripheral tissue.
- (B) The trigger for hemoglobin to release its oxygen molecules in peripheral tissues is a drop in the pH.
- (C) With the release of each oxygen molecule, it becomes easier for hemoglobin to release the next oxygen molecule.
- (D) Hemoglobin's change in shape permits hemoglobin to release its oxygen supply gradually and maintain an emergency supply for extremely hypoxic tissues.

7. Which statements about carbon dioxide are true? (Select all that apply.)

- (A) Most of the carbon dioxide is returned to the lungs bound to proteins in the blood plasma.
- (B) A minority of the carbon dioxide in peripheral tissues returns to the lungs as bicarbonate ions in the blood plasma.
- (C) Carbonic anhydrase binds carbon dioxide molecules to plasma proteins for the return trip to the lungs.
- (D) The lungs have an easier time exhaling carbon dioxide than they do inhaling oxygen.

8. Which statements about the life cycle of blood are true? (Select all that apply.)

- (A) The trigger for hemoglobin production is a drop in oxygen concentration in the blood.
- (B) Hemoglobin production is controlled by the hormone "erythropoietin."
- (C) The organ releasing erythropoietin during periods of hypoxia is the liver.
- (D) Erythropoietin stimulates the bone marrow to make more red blood cells.