



1. What is the composition of hemoglobin?
 - a) Two α and two β chains
 - b) Two γ and two δ chains
 - c) Four α chains
 - d) Four β chains
2. What is the iron state in the heme moiety of hemoglobin?
 - a) Ferric (Fe^{3+})
 - b) Ferrous (Fe^{2+})
 - c) Ferritin
 - d) Ferment
3. What is the correct representation of the reaction of hemoglobin with oxygen?
 - a) $\text{Hb}_4 + \text{O} \rightleftharpoons \text{Hb}_4\text{O}$
 - b) $\text{Hb}_4 + \text{O}_2 \rightleftharpoons \text{Hb}_4\text{O}_2$
 - c) $\text{Hb}_4\text{O}_6 + \text{O}_2 \rightleftharpoons \text{Hb}_4\text{O}_8$
 - d) $\text{Hb} + \text{O} \rightleftharpoons \text{HbO}_2$
4. What factor increases the affinity of hemoglobin and shift curve to the left?
 - a) Hydrogen ions
 - b) Rise of temperature
 - c) 2, 3-diphosphoglycerate (2, 3-DPG) concentration
 - d) Carbon monoxide (CO)
5. Which type of hemoglobin has γ chains replacing the β chains?
 - a) Hemoglobin A1c
 - b) Fetal hemoglobin (HbF)
 - c) Hemoglobin A2
 - d) Glycated hemoglobin



6. Where does erythropoiesis occur after the age of 20?
- Liver
 - Spleen
 - Red bone marrow of long bones
 - Bone marrow of flat membranous bones
7. What is the function of carbonic anhydrase in RBCs?
- Conversion of oxygen to carbon dioxide
 - Conversion of carbon dioxide to oxygen
 - Conversion of carbon dioxide to bicarbonate ions
 - Conversion of bicarbonate ions to carbon dioxide
8. What is the life span of RBCs?
- 60 days
 - 90 days
 - 120 days
 - 150 days
9. What happens to old RBCs after their life span?
- They are broken down by the liver
 - They are stored in the spleen
 - They are broken down by cells of the RES
 - They are recycled in the bone marrow
10. What is the role of fetal hemoglobin (HbF)?
- Transport oxygen from lungs to tissues
 - Transport carbon dioxide from tissues to lungs
 - Facilitate the movement of oxygen from maternal to fetal circulation
 - Buffer H⁺ inside RBCs



Quiz

Answers

Answers:

1. a) Two α and two β chains
2. b) Ferrous (Fe^{2+})
3. b) $Hb_4 + O_2 \rightleftharpoons Hb_4O_2$
4. d) Carbon monoxide (CO)
5. b) Fetal hemoglobin (HbF)
6. d) Bone marrow of flat membranous bones
7. c) Conversion of carbon dioxide to bicarbonate ions
8. c) 120 days
9. c) They are broken down by cells of the RES
10. c) Facilitate the movement of oxygen from maternal to fetal circulation

