

Topic :- Body Fluids And Circulation

1 (a)
Systemic heart refers to enteric heart in lower vertebrates. It pumps the blood to different body parts and not to lungs.

2 (a)
In the case of emergency like accidents, traumatic condition, the spleen can act as erythropoietic organ. That's why, it is called the blood bank

3 (b)
A conjugated polysaccharide heparin is released by the mast cells of connective tissues, which serves to prevent coagulation of blood, while it is flowing in intact blood vessels.

4 (d)
All except IV.
In open circulatory system instead of capillaries, blood vessels join directly with the open sinuses. Blood is actually a combination of blood and interstitial fluid called haemolymph which is forced from the blood vessels into the large sinuses, where it actually, baths the internal organs

Open Circulatory System	Closed Circulatory System
Blood flows in the open tissue spaces. Blood is in direct contact with the tissue cells. Exchange of material directly between the blood and tissue cells. Blood flow is slow. Blood has very low pressure.	Blood flows in the closed tubes. Blood does not come in direct contact with tissue cells. Exchange of material between tissue cells and blood occurs via tissue fluid. Blood flow is rapid. Blood pressure is high.

5 (c)
Blood pressure means the arterial blood pressure. Normal systolic BP in healthy adult man is 120 mm Hg while diastolic blood pressure is 80 mm Hg.

- 6 **(b)**
Hepatic portal vein carries blood rich in absorbed food material such as glucose and amino acid from intestine to liver.
- 7 **(a)**
When the balloon of nitre-aortic balloon pump inflates more blood is carried to coronary artery.
- 8 **(d)**
Clotting disorders occurs mainly due to the reduction in the number of the platelets as platelets releases variety of substances which are involved in clotting
- 9 **(b)**
Blood sugar is glucose, which is converted into glycogen by insulin hormone in the liver and muscles. Usually, blood glucose level is about 80-100 mg/100 mL of blood 12 hours after a normal meal. After taking carbohydrate rich diet, blood sugar level raised. Fasting glucose value of blood is 70-110 mg/dL (decilitre) and post preprandial (after breakfast) is 110-140 mg/dL.
- 10 **(d)**
Process of RBC formation is known as erythropoiesis. Iron, vitamin-B₁₂ and folate are essential for RBC production. Erythropoiesis is completed in 72 hours. Erythropoietic organs in foetus are liver, lymph nodes and spleen. Whereas after birth, erythropoietic tissue is red bone marrow
- 11 **(d)**
Prothrombin is a plasma protein formed in the liver. Vitamin-K is required by the liver for its normal formation
- 12 **(d)**
Spiral valve is present in truncus arteriosis of amphibian heart guiding flow of different types of blood in the aortic arches.
- 13 **(d)**
Blood measures about 5-5.5 L in an adult man, constituting 30-35% of the total extracellular fluid
Glucose Its value is 80-100 mg/100 mL of blood
Cholesterol 50-180 mg/100 mL of blood
Urea Normal level is 17-30 mg/100 mL

- 14 **(a)**
Male is Rh⁺ and female is Rh⁻.
A special case of Rh incompatibility has been observed between Rh - ve blood of pregnant mother with Rh +ve blood of foetus. During the delivery of the first child there is a possibility of exposure of the maternal blood to small amount of Rh +ve blood from foetus.
In such cases, the mother starts preparing antibodies against Rh antigen in her blood. In the case of her subsequent pregnancies, the Rh antibody from the mother can leak to blood of foetus and destroy foetal RBC. This could be fatal to foetus or could cause severe anaemia and jaundice to the foetus. This condition is called erythroblastosis foetalis
- 15 **(b)**
Leucocytes or white blood corpuscles which are without haemoglobin and therefore, they are colourless and considerably larger than RBC. The normal WBC count is 6000-8000 per cubic mm of blood. Lower count is called leukopenia and high WBC count is termed as leukaemia or leucocytosis. The life span of WBC in man is about 10-30 days
- 16 **(b)**
As the two atria contract simultaneously. (Stimulated by SA node, blood is pumped into ventricles. This is called arterial systole
- 17 **(c)**
In haemoglobin, **aspartic acid** acts as blood buffer. It is a dicarboxylic amino acid. The carboxylic group of the side chain dissociates at physiological pH to give the negatively charged side chain.
- 18 **(b)**
In tissue, there is low partial pressure of O₂ and in lungs there is high pressure of O₂. So in graph, A indicates lungs and B indicates the tissues
- 19 **(c)**
Double circulation is the passage of the blood twice in the heart through the separate pathways for completing one cycle. *It consists of two parts*
(i) Pulmonary pathway (ii) Systemic pathway
- 20 **(c)**
Atrial diastole takes place when both the atria are filled with blood (having deoxygenated in right and oxygenated in left)

ANSWER-KEY										
Q.	1	2	3	4	5	6	7	8	9	10
A.	a	a	b	d	c	b	a	d	b	d
Q.	11	12	13	14	15	16	17	18	19	20
A.	d	d	d	a	b	b	c	b	c	c

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