NCERT TEXTBOOK QUESTIONS FROM SOLVED

1. Name the components of the formed elements in the blood and mention one major function of each of them.
Solutlion: Blood corpuscles are the formed ele-ments in the blood, they constitute 45% of the blood. Formed elements are - (erythrocytes, RBCs or red blood corpuscles), (leucocytes, WBCs or white blood corpuscles) and throm¬bocytes or blood platelets. The major function of RBCs is to transport oxygen from lungs to body tissues and COz from body tissues to the lungs. White blood cells provide immunity to the body. Blood platelets play important role in blood clotting.

2. What is the importance of plasma proteins?
Solutlion: Plasma proteins constitute about 7 to 8% of plasma. These mainly include albumin, globulin, prothrombin and fibrinogen. Prothrombin and fibrinogen are needed for blood clotting. Albumins and globulins retain water in blood plasma and helps in maintainingosmoticbalance. Certain globulins

3. Match Column I with Column II.

Column I			Column II
(a)	Eosinophils	(i)	Coagulation
(b)	RBC	(ii)	Universal Recipient
(c)	AB Group	(iii)	Resist Infections
(d)	Platelets	(iv)	Contraction of Heart
(e)	Systole	(v)	Gas transport

Solutlion:
(a) - (iii); (b) - (v); (c) - (ii); (d) - (i); (e) - (iv).

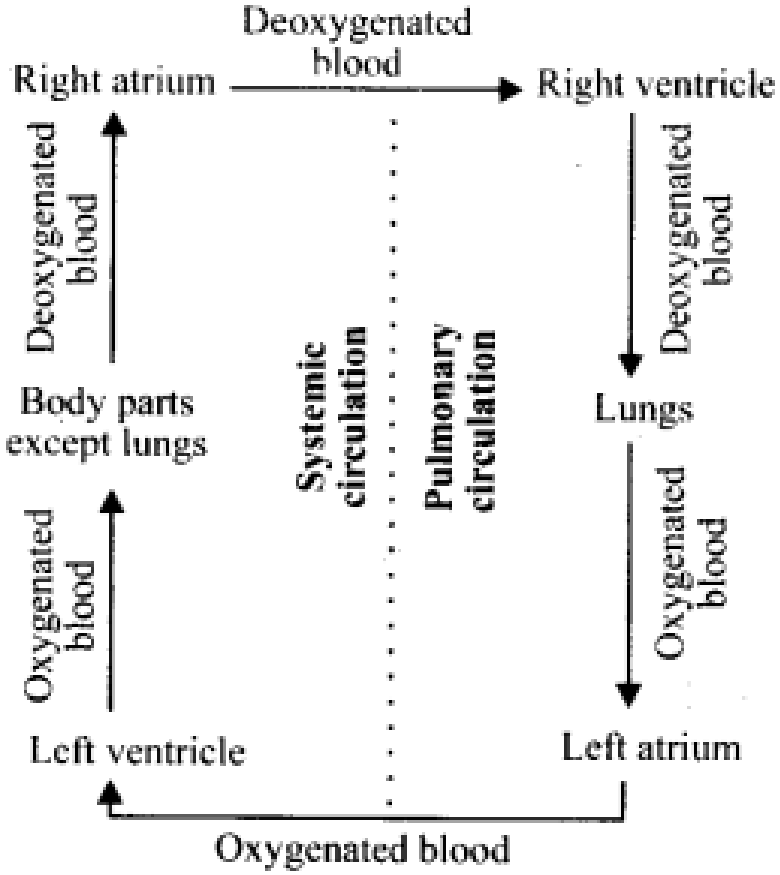
4. Why do we consider blood as a connective tissue?
Solutlion: A connective tissue connects different tissues or organs of the body. It consists of living cells and extracellular matrix. Blood is vascular connective tissue, it is a mobile tissue consisting of fluid matrix and free cells. Blood transports materials from one place to the other and thereby establishes connectivity between different body parts.

5. What is the difference between lymph and blood?

Solutlion: The differences between blood and lymph are given below:

	Blood	Lymph
(i)	It consists of plasma, erythrocytes, leucocytes and platelets.	It consists of plasma and leucocytes (lymphocytes most abundant).
(ii)	It is red in colour due to the presence of haemoglobin in erythrocytes.	It is colourless as haemoglobin is absent.
(iii)	Its plasma has more proteins, calcium and phosphorus.	Its plasma has fewer proteins and less calcium and phosphorus.
(iv)	It carries materials towards and away from the tissue, therefore, it acts as a "vehicle".	It transfers materials from the blood to the body cells and *vice-versa*, therefore, it acts as a "middle man".

6. What is meant by double circulation? What is its significance?
Solutlion: The type of blood circulation in which oxygenated blood and deoxygenated blood do not get mixed is termed double circulation. It includes systemic circulation and pulmonary circulation. The circulatory pathway of double circulation is given in the following flow chart.



Flow chart : Double blood circulation

Flow chart: Double blood circulation Double circulation or separation of systemic and pulmonary circulations provides a higher metabolic rate to the body and also allows the two circulations to have different blood pressures according to the need of the organs they supply.

7. Write the differences between:
(a) Blood and lymph
(b) Open and closed system of circulation
(c) Systole and diastole
(d) P-wave and T-wave
Solutlion: (a) Refer answer 5.
(b) The differences between open and closed circulatory system are given below:

	Open circulatory system	**Closed circulatory system**
(i)	Blood flows through open tissue spaces, the sinuses.	Blood flows in closed tubes, the blood vessels, with definite walls.
(ii)	Blood is in direct contact with the tissue cells.	Blood does not come in direct contact with the tissue cells.

(iii)	Exchange of materials occurs directly between blood and tissue cells.	Exchange of materials between tissue cells and blood occurs *via* tissue fluid.
(iv)	Blood flow is very slow.	Blood flow is quite rapid.
(v)	Respiratory pigment, if present, is dissolved in the plasma, no red corpuscles are present.	Respiratory pigment is present, and may be dissolved in the plasma but is usually held in red blood corpuscles.
(vi)	Occurs in arthropods and most molluscs.	Occurs in annelids and vertebrates.

(c) Systole is contraction of heart chambers in order to pump out blood while diastole is relaxation of heart chambers to receive blood. The contraction of a chamber or systole decreases its volume and forces the blood out of it, whereas its relaxation or diastole brings it back to its original size to receive more blood.
(d) P wave is a small upward wave of elec-trocardiograph that indicates the atrial depolarisation (contraction of atria). It is caused by the activation of SA node. T-wave is a dome shaped wave of electro-cardiograph which represents ventricular repolarisation (ventricular relaxation).

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