Chapter – 7

Body Fluids and Circulation

Multiple Choice Questions

Question 1.

What is the function of lymph?

- (a) Transport of O_2 into brain
- (b) Transport of CO_2 into lungs
- (c) Bring interstitial fluid in blood

(d) Bring RBC and WBC in lymph node

Answer:

(c) Bring interstitial fluid in blood

Question 2.

Which one of the following plasma proteins is involved in the coagulation of blood?

- (a) Globulin
- (b) Fibrinogen
- (c) Albumin
- (d) Serum amylase

Answer:

(b) Fibrinogen

Question 3.

Which of the following WBCs are found in more numbers?

- (a) Eosinophil
- (b) Neutrophil
- (c) Basophil
- (d) Monocyte

Answer:

(b) Neutrophil

Question 4.

Which of the following is not involved in blood clotting?

- (a) Fibrin
- (b) Calcium
- (c) Platelets
- (d) Bilirubin

Answer:

(d) Bilirubin

Question 5.

Lymph is colourless because

- (a) WBC are absent
- (b) WBC are present
- (c) Haemoglobin is absent
- (d) RBC are absent

Answer:

(c) Haemoglobin is absent

Question 6.

Blood group is due to the presence or absence of surface

- (a) Antigens on the surface of WBC
- (b) Antibodies on the surface of RBC
- (c) Antigens on the surface of RBC
- (d) Antibodies on the surface of WBC

Answer:

(c) Antigens on the surface of RBC

Question 7.

A person having both antigen A and antigen B on the surface of RBCs belongs to blood group

- (a) A
- (b) B
- (c) AB
- (d) 0

Answer:

(c) AB

Question 8.

Erythroblastosis foetalis is due to the destruction of

(a) Foetal RBCs

(b) Foetus suffers from atherosclerosis

- (c) Foetal WBCs
- (d) Foetus suffers from mianmata

Answer:

(a) Foetal RBCs

Question 9.

Dub sound of heart is caused by

- (a) Closure of atrio-ventricular valves
- (b) Opening of semi-lunar valves
- (c) Closure of semi-lunar valves

(d) Opening of atrio-ventricular valves

Answer:

(c) Closure of semi-lunar values

Question 10.

Why is the velocity of blood flow the lowest in the capillaries?

(a) The systemic capillaries are supplied by the left ventricle, which has a lower cardiac output than the right ventricle.

(b) Capillaries are far from the heart, and blood flow slows as distance from the heart increases.

(c) The total surface area of the capillaries is larger than the total surface area of the arterioles.

(d) The capillary walls are not thin enough to- allow oxygen to exchange with the cells.

(e) The diastolic blood pressure is too low to deliver blood to the capillaries at a high flow rate.

Answer:

(c) The total surface area of the capillaries is larger than the total surface area of the arterioles.

Question 11.

An unconscious patient is rushed into the emergency room and needs a fast blood transfusion. Because there is no time to check her medical history or determine her blood type, which type of blood should you as her doctor, give her?

- (a) A+
- (b) AB
- (c) 0+
- (d) 0-

Answer:

(c) 0+

Question 12.

Which of these functions could or could not be carried out by a red blood cell? (a) Protein synthesis

- (b) Cell division
- (c) Lipid synthesis
- (d) Active transport

Answer:

(a) Protein synthesis: RBCs do not have ribosomes which are important for protein synthesis, They are concerned with transport of respiratory gases alone. Hence protein synthesis could not take place in RBCs.

(b) Cells division: RBCs do not have numbers. They are produced in the bone marrow. They do not involve in cell division.

(c) Lipid Synthesis: Lipid synthesis occurs in endoplasmic reticulum (ER) and golgi complex. The ER is absent in RBCs. Hence lipid synthesis does not take place in RBCs.

(d) Active transport: Transport of respiratory gases between the alveoli to the blood vessels, blood vessel to the cells and vice versa take place due to difference in the partial pressure of O_2 and CO_2 ., Active transport of materials against concentration gradient does not take place in RBCs.

Question 13.

At the venous end of the capillary bed, the osmotic pressure is

- (a) Greater than the hydrostatic pressure
- (b) Result in net outflow of fluids
- (c) Results in net absorption of fluids
- (d) No change occurs

Answer:

(a) Greater than the hydrostatic pressure

Question 14.

A patient's chart reveals that he has a cardiac output of 7500mL per minute and a stroke volume of 50 mL. What is his pulse rate (in beats / min)

- (a) 50
- (b) 100
- (c) 150
- (d) 400

Answer:

(c) 150

Question 15.

At any given time there is more blood in the venous system than that of the arterial system. Which of the following features of the veins allows this?

- (a) relative lack of smooth muscles
- (b) presence of valves
- (c) proximity of the veins to lymphatic's
- (d) thin endothelial lining

Answer:

(a) relative lack of smooth muscles

Question 16.

Distinguish between arteries and veins?

Answer:

Arteries	Veins

1. Arteries are the blood vessels that carry blood away from the heart.	1. Veins are the blood vessels that carry blood to the heart.
2. Arteries carry oxygenated blood except pulmonary artery.	2. Veins carry deoxygenated blood except pulmonary veins.
3. Arteries usually lie deep inside the body.	3. Veins are usually located superficially.
4. These are thick walled.	4. These are thin walled.
5. These do not have valves.	5. These have semilunar valves.
6. Blood pressure is high.	6. Blood pressure is low.

Question 17.

Distinguish between open and closed circulation?

Answer:

Open circulation	Closed circulation
1. Open circulation, haemolymph is pumped by the heart which flows through blood vessels into the haemocoel.	1.In closed circulation, blood is pumped by the heart and flows through blood vessels
2. It is seen in arthropods and most molluscs.	2. It is seen in annelids, cephalopods and vertebrates

Question 18.

Distinguish between mitral valve and semi lunar valve?

Answer:

Mitral valve	Semilunar vales
1. The valve present between	1. The valves present at the openings
the left atrium left ventricle is	of right and left ventricles into the
called mitral valve.	pulmonary artery and aorta are
	semilunar valves.
2. It is made of two flaps.	2. These are of three half-moon
	shaped cusps.

Question 19.

Right ventricular wall is thinner than the left ventricular wall. Why?

Answer:

The wall of the left ventricle is thick

Reason:

- As the right ventricle constricts the deoxygenated blood through the pulmonary vein goes to the lungs only. These may not be necessary for much blood pressure for this.
- As the left ventricle constricts through the dorsal aorta blood goes to all the parts of the body.
- For this action, more pressure is needed. Hence the wall of the left ventricle is thick. It gives more pressure on the contraction of the ventricle to distribute the blood.

Question 20.

What might be the effect on a person whose diet has less iron content?

Answer:

A person whose diet has less iron content will become anaemic. The haemoglobin content of the blood will be less. The volume of oxygen carried by RBCs gets reduced. He/she may experience tiredness, weakness, fatigue etc. In order to overcome this deficiency one has to take iron-rich diet.

Question 21.

Describe the mechanism by which the human heartbeat is initiated and controlled?

Answer:

The rhythmic contraction and expansion of heart is called heartbeat. The contraction of the heart is called systole and the relaxation of the heart is called diastole. The human heart is myogenic. The pacemaker cells are located in the right sinoatrial (SA) node.

On the left side of the right atrium, there is a mode called auriculo ventricular node (AV). Two special cardiac muscle fibers which originate from the AV

node are called the bundle of His. It runs down into the interventricular spectrum and the fibres spread into the ventricle as the Purkinje fibres.

The pacemaker cells produce excitation through depolarization of their cell membrane. Early depolarization is slow and takes place by sodium influx and reduction in potassium efflux. Minimum potential is required to activate voltage gated calcium (Ca⁺) channels that cause rapid depolarization which results in action potential. The pace maker cells repolarise slowly via K⁺ efflux.

Question 22.

What is lymph? Write its function?

Answer:

The fluid inside the lymphatics is called lymph. Uses:

- It helps in transporting nutrients hormones oxygen within the body cells.
- It keeps the body cells moist.
- The lymph nodes synthesize lymphocytes.
- It keeps the blood volume uniformly.
- Fats are absorbed through lymph in the lacteals present in the villi of the intestinal wall.

Question 23.

What are the heart sounds? When and how are these sounds produced?

Answer:

During each cardiac cycle due to the action of valves, two sounds like lub and dub are produced. These sounds are known as cardiac sounds.

- Lub sound: During the contraction of the ventricle, the closure of tricuspid and bicuspid valves make this sound.
- Dub sound: During the relaxation of the ventricle, the valves of the pulmonary artery and dorsal aorta close and make this sound.

Question 24.

Select the correct biological term. Lymphocytes, red cells, leukocytes, plasma, erythrocytes, white cells, haemoglobin, phagocyte, platelets, blood clot?

Question (a) Disc-shaped cells which are concave on both sides? Answer: Red blood cells

Question (b) Most of these have a large, bilobed nucleus? **Answer:** Leucocytes

Question (c) Enable red cells to transport blood? **Answer:** Hemoglobin

Question (d) The liquid part of the blood? **Answer:** plasma

Question (e) Most of them move and change shape like an amoeba? **Answer:** phagocyte

Question (f) Consists of water and important dissolved substances? **Answer:** plasma

Question (g) Destroyed in the liver and spleen after circulating in the blood for four months? Answer: RBCs

Question (h) The substances which give red colour to their cells? **Answer:** haemoglobin

Question (i) Another name for red blood cells? **Answer:** Erythrocytes

Question (j) Blood that has been changed to a jelly? **Answer:** Blood clot

Question (k) A word that me cell eater? **Answer:** Phagocyte

Question (l) Cells without a nucleus? **Answer:** Red blood cells

Question (m) White cells made in the lymphatic tissue? **Answer:** Lymphocytes

Question (n) Blocks wound and prevent excessive bleeding? **Answer:** Platelets **Question (o)** Fragment of cells which are made in the bone marrow? **Answer:** Erythrocytes

Question (p) Another name for white blood cells? **Answer:** Leucocytes

Question (q) Slowly releases oxygen to blood cells? **Answer:** Red cells

Question (r) Their function is to help blood clot in wounds? **Answer:** Platelets

Question 25. Select the correct biological term?

Answer:

Cardiac muscle, atria, tricuspid valve, systole, auricles, arteries, diastole, ventricles, bicuspid valve, pulmonary artery, cardiac cycle, semilunar valve, veins, pulmonary vein, capillaries, vena cava, aorta?

Question (a) The main artery of the blood? **Answer:** Aorta

Question (b) Valves between the left atrium and ventricle? **Answer:** Bicuspid valve **Question (c)** The technical name for relaxation of the heart? **Answer:** Diastole

Question (d) Another name for atria? **Answer:** Arteries

Question (e) The main vein? **Answer:** Vena cava

Question (f) Vessels which carry blood away from the heart? **Answer:** Arteries

Question (g) Two names for the upper chambers of the heart? **Answer:** Atria

Question (h) Thick-walled chambers of the heart? **Answer:** Atria

Question (i) Carries blood from the heart to the lungs? **Answer:** Pulmonary Artery

Question (j) Takes about 0.8 sec to complete? **Answer:** Cardiac cycle

Question (k) Valves situated at the point where blood flows out of the heart? **Answer:** Semilunar valves

Question (l) Vessels which carry blood towards the heart? **Answer:** Veins

Question (m) Carries blood from the lungs to the heart? **Answer:** Pulmonary veins

Question (n) The two lower chambers of the heart? **Answer:** Ventricles

Question (o) Prevent blood from re-entering the ventricles after entering the aorta? **Answer:** Semilunar valves

Question (p) The technical name for one heartbeat? **Answer:** Cardiac cycle

Question (q) Valves between right atrium and ventricles? **Answer:** Tricuspid valve **Question (r)** The technical name for the contraction of the heart? **Answer:** Systole

Question (s) Very narrow blood vessels? **Answer:** Capillaries

Question 26.

Name and label the given diagram to show A, B, C, D, E, F, and G?

- (A) Aorta
- (B) Pulmonary trunk
- (C) Left pulmonary veins

(D) Blocking the action of vasoconstrictor lowers the blood pressure. Give reasons.

(E) What is the role of ACH inhibitors in reducing blood pressure?

(F) What conditions one might expect if the blood pressure is not controlled?

Answer:

- (A) Aortic arch
- (B) Left pulmonary artery
- (C) Left pulmonary veins
- (D) Pulmonary trunk
- (E) Left ventricle
- (F) Right ventricle
- (G) Inferior vena cava

