REVIEW QUESTIONS

MUTIPLE CHOICE TYPE

(Select the most appropriate option in each case)

1. Agranulocytes are:

(a) lymphocytes and monocytes **(b) lymphocytes and basophils**

(c) eosinophils and basophils **(d) eosinophils and monocytes**

Solution:-

(a) lymphocytes and monocytes

2. White blood cells engulf bacteria in a process called:

(a) diapedesis **(b) phagocytosis**

(c) active transport **(d) passive transport**

Solution:-

(b) phagocytosis

3. The nearest organ to which the heart supplies oxygenated blood is

(a) Lung **(b) Stomach**

(c) Intestine **(d) Heart itself**

Solution:-

(d) Heart itself

4. When a doctor is recording your pulse, he is pressing on your wrist exactly on a

(a) vein **(b) capillary**

(c) artery **(d) arteriole**

Solution:-

(c) artery

5. The blood vessels supplying blood to the kidney is

(a) renal vein **(b) renal artery**

(c) dorsal aorta **(d) hepatic vein**

Solution:-

(b) renal artery

6. Angina Pectoris is due to

(a) defective nutrition

(b) chest pain due to inadequate supply of oxygen to the heart muscle

(c) defective functioning of mitral valve
(d) infection by a virus
Solution:-
(b) chest pain due to inadequate supply of oxygen to the heart muscle

7. The chief function of lymph nodes is to
(a) produce WBCs **(b) produce hormones**
(c) destroy old RBCs **(d) destroy pathogens**
Solution:-
(d) destroy pathogens

8. Heart sounds are produced due to
(a) closure of tricuspid and bicuspid valves
(b) rushing of blood through valves producing turbulence
(c) closure of atrioventricular and semilunar valves
(d) entry of blood into auricles
Solution:-
(a) closure of tricuspid and bicuspid valves
(b) rushing of blood through valves producing turbulence
(c) closure of atrioventricular and semilunar valves

B. VERY SHORT ANSWER TYPE.
1. Given below are certain structures, write their chief functional activity.
(a) Blood platelets……
Solution:-
Blood platelets and blood coagulation

(b) Neutrophils …….
Solution:-
Neutrophils and phagocytosis

(c) Erythrocytes …….
Solution:-
Erythrocytes and transportation of gases

(d) Lymphocytes …….
Solution:-

Lymphocytes and Produce antibodies

(e) Bone marrow ……
Solution:-
Bone marrow and destruction of old and weak RBC's or production of RBCs and WBCs.

2. Name the following:
(a) Any one vein which starts from an organ and ends in another organ besides the heart.
Solution:-
Hepatic portal vein

(b) The kind of blood vessels which have no muscular walls.
Solution:-
Blood Capillaries

(c) Any artery which carries impure (deoxygenated) blood.
Solution:-
Pulmonary artery

(d) The kind of blood cells which can squeeze out through the walls of one category of blood vessels.
Solution:-
White blood cells

(e) The smallest common blood vessels formed by the union of capillaries.
Solution:-
Venules

(f) The category of blood vessels which start from capillaries and end in capillaries.
Solution:-
Portal vein

(g) The phase of the cardiac cycle in which the auricles contract.
Solution:-
Atrial systole

(h) The valve present in between the chambers on the right side of the human heart.
Solution:-
Tricuspid valve

(i) The phase of the cardiac cycle in which the ventricles get filled with blood from the atrium.
Solution:-
Atrial systole

(j) The fluid found between the membranes of the heart.
Solution:-
Pericardial fluid

4. Complete the following statements by filling in the blanks from the choices given in the brackets.
(a) The blood vessel that begins and ends in capillaries is the _____. (hepatic artery, hepatic portal vein, hepatic vein)
Solution:-
The blood vessel that begins and ends in capillaries is the hepatic portal vein.

(b) A blood vessel which has small lumen and thick wall is _____. (capillary, lymphatic duct, artery, venule)
Solution:-
A blood vessel which has small lumen and thick wall is artery.

(c) The valve which prevents the back flow of blood in the veins and lymph vessels _____.(mitral valve, tricuspid valve, semilunar valve)
Solution:-
The valve which prevents the back flow of blood in the veins and lymph vessels semilunar value.

(d) An anticoagulant present in the blood is _____.(heparin, hirudin, thromboplastin, calcium)
Solution:-
An anticoagulant present in the blood is heparin.

5. Note the relationship between the first two words and suggest the suitable

word/words for the fourth place:

(a) Lubb: Atrioventricular valve:: Dup:_____

Solution:-

Lubb: Atrioventricular valve:: Dup: Semilunar valves

(b) Coronary artery: Heart::Hepatic artery:_____

Solution:-

Coronary artery: Heart::Hepatic artery: Liver

6. Give reason, why a mature mammalian erythrocyte lacks nucleus and mitochondria?

Solution:-

Mammalian red blood cell when mature circulates in the blood system and are devoid of certain organelles. Loss of nucleus, makes the red cells biconcave, thus increasing their surface area volume ratio for absorbing more oxygen.

(a) Space in between increased.

(b) More RBCs can be accommodated in the same space.

Loss of mitochondria means that the red cells cannot use oxygen for themselves. Thus all the oxygen, absorbed from the lungs, is transported and delivered to the tissues unconsumed. Secondly, loss of mitochondria means full transport of glucose in blood plasma. Unused by the RBCs.

C. SHORT ANSWER TYPE

1. Enumerate the structural differences between white blood cells and red blood cells.

Solution:-

White blood Cells	Red blood Cells
1. White blood cells are amoeboid and can produce pseudopodia with which they can squeeze through the walls of the capillaries into the tissues.	1. Red blood cells are minute biconcave disc-like structures, flat in the center and thick and rounded at the periphery.
2. These are differ from red blood cells in having a nucleus and not containing hemoglobin.	2. Red blood cells contains haemoglobin and not having nucleus cells.

2. Why is it necessary to know the blood groups before giving transfusion?

Solution:-

Sometimes it becomes necessary to inject blood into the body of patients undergoing

surgical operation. This is called blood-transfusion. Blood taken from a healthy person (donor) is introduced through one of the patient's veins. But for doing so, it is necessary that the kind or the type of blood to be transfused should match with the type of blood of the receiving person (recipient).
RBC's of human being have specific proteins on their surface. These proteins are called antigens. The plasma of the blood has its complementary antibodies.

3. Differentiate between members of each of the following pairs with reference to phrases in brackets:
(a) Antibodies and Antibiotics (Source)
Solution:-

Antibodies	Antibiotics
When diseases-causing germs gain entry into the blood stream, they produce poisonous substances called toxin. In response, the lymphocytes of the blood produce chemical substance called antibodies which circulate freely in the blood plasma.	Antibiotics, also known as antibacterial, are medications that destroy or slow down the growth of bacteria.

(b) RBC and WBC (Structure)
Solution:-

RBC	WBC
Red blood cells are also called erythrocytes. These are minute biconcave disc-like structures, flat in the centre and thick and rounded at the periphery.	White blood cells are also called leukocytes. Most WBCs are amoeboid and can produce pseudopodia with which they can squeeze through the walls of the capillaries into the tissues.

(c) Serum and Vaccine (Composition)
Solution:-

Serum	Vaccine
The plasma from which the protein fibrinogen has been removed is called serum.	A **vaccine** is a biological preparation that provides active acquired immunity to a particular disease. A **vaccine** typically contains an agent that resembles a disease-causing microorganism and is

	often made from weakened or killed forms of the microbe, its toxins, or one of its surface proteins.

(d) Erythrocytes and leucocytes (function)
Solution:-

Erythrocytes	Leucocytes
Erythrocytes carry oxygen as oxyhaemoglobin which readily dissociates to deliver oxygen to tissues.	Leucocytes protect from diseases by engulfing bacteria and producing antitoxins and antibodies to neutralise poisonous substances. Can squeeze out through capillary walls to fight germs.

(e) Artery and vein (direction of blood flow)
Solution:-

Artery	Vein
The blood in it flows in spurts which correspond to the ventricular contractions of the heart.	The blood in it flows uniformly and it contains thin pocket-shaped valves whose opening face in the direction of the heart.

(f) Artery and vein (type of blood primarily flowing through)
Solution:-

Artery	Vein
An artery is a vessel which carries oxygenated blood away from the heart towards any organ.	A vein is a vessel which carries the deoxygenated blood away from an organ towards the heart.

(g) Tricuspid and bicuspid valves (location)
Solution:-

Tricuspid valves	Bicuspid valves
It also called Right atrio-ventricular valve is located at the aperture between the right auricle and the right ventricle.	It is also called left atrio-ventricular is located in a similar way on the left side of the heart.

4. What does the term “double circulation” mean?
Solution:-
Blood flows twice in the heart before it completes one full round the short pulmonary

circulation and the long systemic circulation. For this reason the blood circulation in the human body is called double circulation.

5. When are the sounds "LUBB" and "DUP" produced respectively during heart beat?
Solution:-
The first sound "LUBB" is produced when the atrio-ventricular (tricuspid and bicuspid) valves get closed sharply at the start of ventricular systole. The second sound "DUP" is produced when at the beginning of ventricular diastole, the semilunar valves at the roots of aorta and pulmonary artery get closed.

6. Why do people have a common belief that the heart is located on the left side of the chest?
Solution:-
The heart is right in the center between the two lungs and above the diaphragm. The narrow end of the roughly triangular heart is pointed to the left side and during working, the contraction of the heart is most powerful at this end giving a feeling that the heart is on the left side.

7. Match the items in column 'A' with those in column 'B'. Rewrite the correct matching pairs.

Column A	Column B
(a) SA Node	(i) Plasma
(b) Defective haemoglobin in RBC	(ii) Serum
(c) Muscle fibres located in heart	(iii) Pacemakers
(d) The liquid squeezed out of blood during clothing	(iv) Sickle cell anaemia
(e) Never tires, keep on controlling and relaxing	(v) Purkinje fibres
(f) Cardiac cycle	(vi) Cardiac muscle
(g) Liquid part of the blood without corpuscles	(vii) 0.85 sec

Solution:-

Column A	Column B
(a) SA Node	(iii) Pacemakers
(b) Defective haemoglobin in RBC	(iv) Sickle cell anaemia
(c) Muscle fibres located in heart	(v) Purkinje fibres
(d) The liquid squeezed out of blood	(ii) Serum

during clothing
(e) Never tires, keep on controlling and relaxing — (vi) Cardiac muscle
(f) Cardiac cycle — (vii) 0.85 sec
(g) Liquid part of the blood without corpuscles — (i) Plasma

8. The table below is designed to indicate the transport of certain substances in our body. Fill in the blanks with suitable answers.
Solution:-

Substance	From	To
1. ……	Lungs	Whole body
2. Carbon dioxide	…….	……
3. Urea	…….	…….
4. Digested carbohydrates	Intestine	…….
5. …….	…….	Target organs

Solution:-

Substance	From	To
1. Oxygen	Lungs	Whole body
2. Carbon dioxide	Whole body	Lungs
3. Urea	Whole body	Kidneys
4. Digested carbohydrates	Intestine	Whole body
5. Hormones	Endocrine glands	Target organs

D. LONG ANSWER TYPE

1. What are the functions of blood plasma?
Solution:-
The functions of blood plasma are:
(i) Distributes heat in the body to maintain the body temperature.
(ii) Distributes hormones from the glands to their target site.
(iii) Transports of digested food from the alimentary canal to tissues.
(iv) Transports excretory materials from tissues to excretory organs.

2. Write the main steps in coagulation of blood in their correct sequence?
Solution:-
The main steps in coagulation of blood in their correct sequence is
1. The injured tissue cells and the platelets which disintegrate at the site of the wound

release a substance thrombokinase.
2. The thrombokinase acts as an enzymes and with the help of the calcium ions present in the plasma, it converts a substance prothrombin of the plasma, into thrombin.
3. Thrombin in the presence of calcium ions, reacts with the soluble fibrinogen of the plasma to convert it into insoluble fibrin.
4. Blood cells are trapped in the network of the fibrin; the network then shrinks and squeezes out the rest of the plasma which is in the form of a clear liquid serum.

3. What are the following?
(a) Rh factor
Solution:-
The blood of most people contains a substance called Rh factor. When the blood of such an individual is transfused into persons lacking it, the blood of such an individual is transfused into persons lacking it, the blood recipient develops an antibody for Rh substance within about two weeks of transfusion.

(b) Universal donor
Solution:-
O type blood can be given to persons of all types of blood i.e. to O, A, B and AB. Hence a person with O type blood is called universal donor.

(c) Diapedesis
Solution:-
Diapedesis is known as the squeezing of leucocytes through the wall of capillaries into the tissues.

4. Is it possible for the blood to clot under the skin? Give reason in support your answer.
Solution:-
It is a wrong notion that clotting is dependent on the exposure of blood to air. In fact, clotting can be caused by the movement of blood over a rough surface as on cholesterol deposit on the inside of a blood vessel.

5. State any five functions of the blood.
Solution:-
The main functions of the blood in our body can be treated under two broad headings (A) Transport and (B) Protection.

1. Transport of digested food from the alimentary canal to the tissues.
2. Transport of oxygen from the lungs to the tissues. It occurs by means of red blood cells in combination with haemoglobin in the form of an unstable compound oxyhaemoglobin, which on reaching the tissues breaks up to deliver oxygen.
3. Transport of carbon dioxide from the tissues to the lungs.
4. Transport of excretory material from the tissues to the liver, kidney or the skin for elimination or to render them harmless.
5. Distribution of hormones secreted by special glands directly into the blood.

6. Explain the following terms:
(a) Endothelium
Solution:-
It is the innermost layer of the muscular wall of an artery or a vein which faces the lumen.

(b) Lymph nodes
Solution:-
The structures from which fresh lymph channels arise which pour the lymph into major anterior veins.

(c) Venule
Solution:-
The capillaries gradually reunite and increase in size assuming the same three layers as in arteries and vein. The smallest united common branch is called a venule.

(d) Diastole
Solution:-
Diastole is the relaxation of muscles of ventricles.

7. Give the structural difference between an artery and a vein.
Solution:-

Arteries	Veins
1. Progressively branched, decreasing in size.	1. Progressively unite increasing in size.
2. Smallest artery breaks into arterioles.	2. Smallest vein arises from venules.
3. Have thick and more muscular walls.	3. Have thin and less muscular walls.
4. Walls are elastic.	4. Walls are non-elastic.

5. Have narrower lumen.	5. Have wider lumen.
6. Have no values in their inner lining.	6. Have valves in their inner lining to prevent backward flow of blood.

8. What are the functions of tonsils and spleen?
Solution:-
The function spleen are,
1. It acts like a blood reservoir.
2. It produces lymphocytes.
3. It destroys worn-out red blood cells.
4. In an embryo, spleen produces RBCs.
Tonsils are lymph glands located on the sides of the neck.
Function of tonsils are tend to localize the infection and prevent it from spreading it in the body as a whole.

9. How do you account for the following differences?
(a) The left ventricle has thicker walls than the right ventricle.
Solution:-
The left ventricle has thicker walls than the right ventricle because, the left ventricle pumps blood up to the farthest points in the body, such as, up to the toes in the feet or up to the brain against gravity. But right ventricle pumps blood only up to the lungs for oxygenation.

(b) The walls of the right ventricle are thicker than those of the right auricle.
Solution:-
The walls of the right ventricle are thicker than those of the right auricle because, the right ventricle pumps blood up to the lungs for oxygenation. But auricles major function is to receive blood from the body and pump it into the very next ventricles.

10. Give reason for the following:
(a) The walls of the left ventricle are thicker than the walls of all the chambers.
Solution:-
The left ventricle has thicker walls than the walls of all the chambers because, the left ventricle pumps blood up to the farthest points in the body, such as, up to the toes in the feet or up to the brain against gravity.

(b) Blood flowing away from the stomach and intestines is put into circulation via the

liver and not directly.
Solution:-
The veins starting from the stomach and intestine do not directly convey the blood to the posterior vena cava. Instead they first enter the liver as a combined hepatic portal vein breaks up into capillaries in contrast to the general characteristics of a vein and a new vein called hepatic vein.

(c) The blood groups of both the donor and recipient must be known before transfusing blood.
Solution:-
Sometimes it becomes necessary to inject blood into the body of patients undergoing surgical operation. This is called blood-transfusion. Blood taken from a healthy person (donor) is introduced through one of the patient's veins. But for doing so, it is necessary that the kind or the type of blood to be transfused should match with the type of blood of the receiving person (recipient).
RBC's of human being have specific proteins on their surface. These proteins are called antigens. The plasma of the blood has its complementary antibodies.

(d) Only the veins and not the arteries are provided with valves.
Solution:-
Only the veins and not the arteries are provided with valves because, Veins carry blood away from an organ and towards the heart and have valves in their inner lining to prevent backward flow of blood. But arteries carry blood away from the heart and into an organ have no valves in their inner lining.

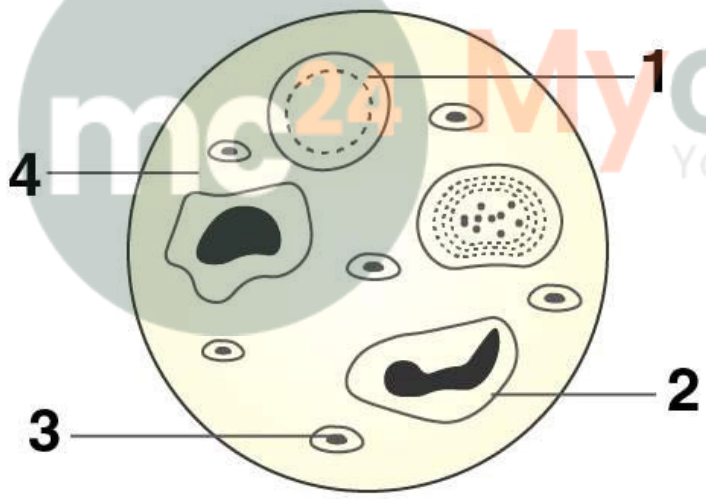
(e) Atrial wall is less muscular than the ventricular wall.
Solution:-
Atrial wall is less muscular than the ventricular wall because, the ventricle pumps blood up to the lungs for oxygenation and ventricle pumps blood up to the farthest points in the body, such as, up to the toes in the feet or up to the brain against gravity. But atrial major function is to receive blood from the body and pump it into the very next ventricles.

(f) The arteries are deep seated in the body.
Solution:-
Arteries carry oxygenated blood away from the heart to the tissues. The blood flows in the artery under high pressure and in spurts. If arteries are located superficially then

there is a high possibility of their damage which could lead to a lot of blood loss. To prevent this damage and blood loss, the arteries are deep seated in the body.

11. What is meant by the term 'double circulation' of blood in mammals? What is diastole?
Solution:-
Blood flows twice in the heart before it completes one full round the short pulmonary circulation and the long systemic circulation. For this reason the blood circulation in the human body is called double circulation.
Diastole is a phase in the cardiac cycle, during which the heart relaxes and allows blood to refill each atrium and each ventricle.

E. STRUCTURED/APPLICATION/SKILL TYPE
1. Given alongside is a diagram of a smear of human blood. Study the same and answer the questions that follow:



(a) Name the parts 1, 2, 3 and 4 indicated by guidelines.
Solution:-
1 is Red Blood Cell (RBC)
2 is White Blood Cell (WBC)
3 is Blood Platelet
4 is Blood Plasma.

(b) Mention two structural differences between the parts labeled 1 and 2.
Solution:-

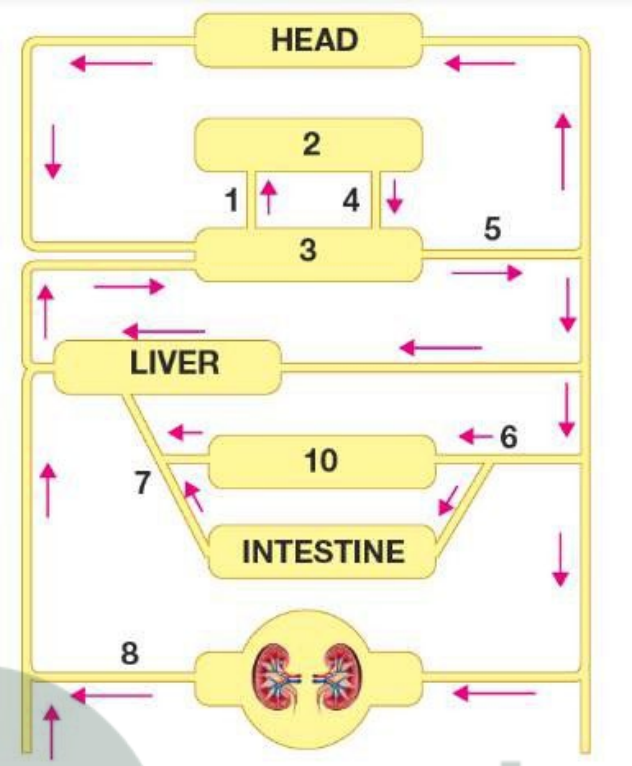
White blood Cells	Red blood Cells
1. White blood cells are amoeboid and can produce pseudopodia with which they can squeeze through the walls of the capillaries into the tissues.	1. Red blood cells are minute biconcave disc-like structures, flat in the center and thick and rounded at the periphery.
2. These are differ from red blood cells in having a nucleus and not containing hemoglobin.	2. Red blood cells contains haemoglobin and not having nucleus cells.

(c) What is the main function of the parts labeled 1, 2 and 3 respectively?
Solution:-
Function of part 1 red blood cell is to transport oxygen to body cells and deliver carbon dioxide to the lungs.
Function of part 2 white blood cell is help to defend the body against infectious disease and foreign materials as part of the immune system.
Function of part 3 blood platelet is when a blood vessel is cut, blood escapes from it. But soon a clot is formed on the wound and the flow of blood is stopped.

(d) What is the life span of the part labeled "1"?
Solution:-
The average life span of a RBC is about 120 days.

(e) Name a soluble protein found in "4" which helps in clotting of blood.
Solution:-
The soluble protein found in "4" which helps in clotting of blood is thromboplastin.

2. Given below is a highly schematic diagram of the human blood circulatory system.



(a) Which part (state the number) represents the heart? Give reason in support of your answer.

Solution:-

Part 3 represents the heart. Blood flows twice in the heart before it completes one full round the short pulmonary circulation and the long systemic circulation. For this reason the blood circulation in the human body is called double circulation.

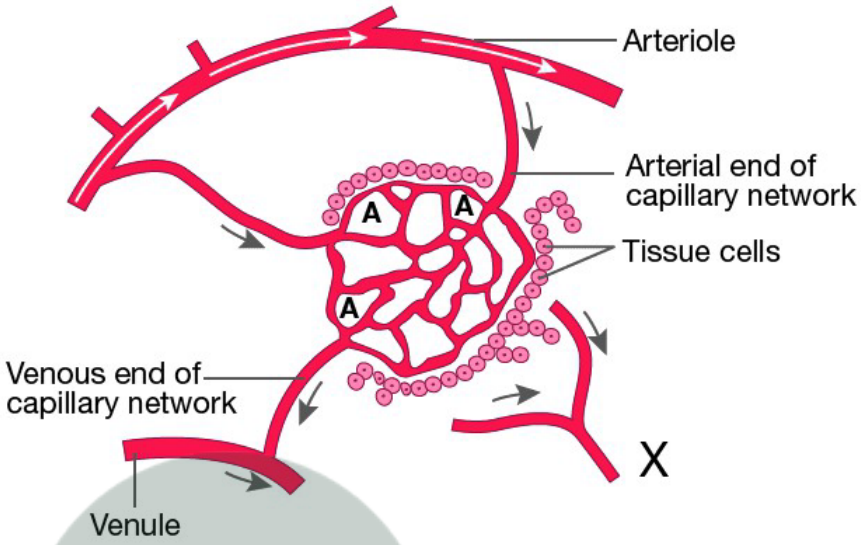
(b) Which numbers represent the following respectively?

Aorta	**Superior vena cava**
Hepatic portal vein	**Renal vein**
Pulmonary artery	**Stomach**

Solution:-

Number 5 represents Aorta
Number 7 represents Hepatic portal vein
Number 1 represents Pulmonary artery
Number 9 represents Superior vena cava
Number 8 represents renal vein
Number 10 represents Stomach

3. The diagram below shows part of the capillary bed in an organ of the human body. Some of the blood arriving at the capillaries at points labeled A, moves out into the spaces between the tissue cells. Study the diagram and answer the questions that follow:



(a) When the liquid from the blood surrounds the cells, what is it called?
Solution:-
The liquid from the blood surrounds the cells is called tissue fluid.

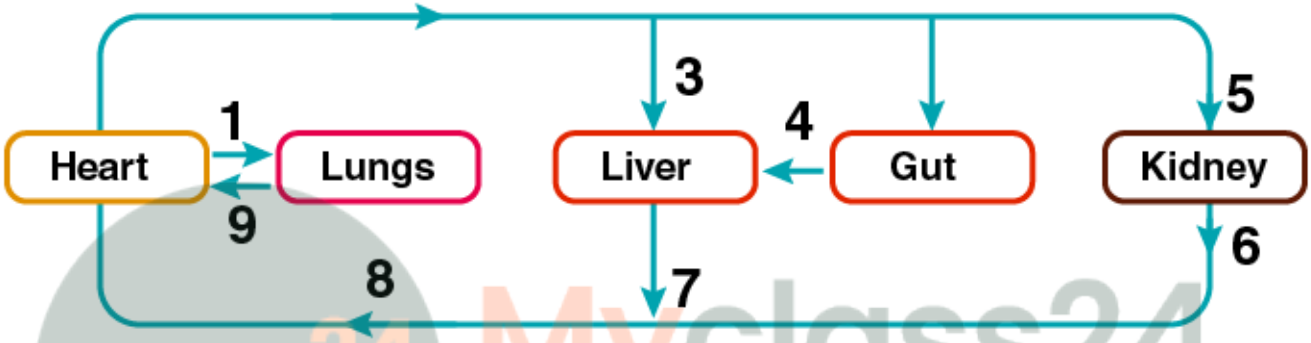
(b) Name any one important component of the blood which remains inside the capillaries and fails to move out into the spaces.
Solution:-
The important component of the blood which remains inside the capillaries and fails to move out into the spaces is Red Blood Cells.

(c) Some of the liquid surrounding the cells does not pass directly back into the blood but eventually reaches it by another route through vessel X. name the fluid present in vessel X.
Solution:-
Lymph is the fluid that present in vessel X.

(d) State two important functions performed in our body by the fluid present in vessel X.
Solution:-

Functions of lymph
1. Nutritive: Supplies nutrition and oxygen to those parts where blood cannot reach.
2. Drainage: It drains away excess tissues fluid and metabolites and returns proteins to the blood from tissue spaces.
3. Absorption: Fats from the intestine are absorbed through lymphatics.

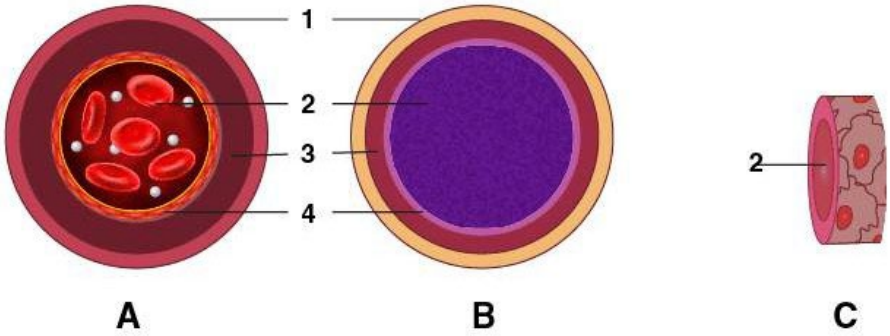
4. The following simplified diagram refers to the outline plan of the circulation of blood in a mammal. Study the diagram and write the number and name of the blood vessel in each case as mentioned ahead.



(a) Several hours after a meal containing a lot of protein, which vessel will contain the highest concentration of urea?
Solution:-
Number 4 Hepatic portal vein contain the highest concentration of urea.

(b) Which vessel would contain the highest concentration of amino acids and glucose soon after a meal?
Solution:-
Number 4 Hepatic portal vein contain the highest concentration of amino acids and glucose soon after a meal.

5. The figures given below show diagrammatic cross-sections of three kinds of blood vessels.



(a) Identify the blood vessels A, B and C.
Solution:-
A represents Artery
B represents Vein
C represents Capillary

(b) Name the parts labeled 1-4.
Solution:-
1 represents External layer made of connective tissue
2 represents Lumen
3 represents Middle layer of smooth muscles and elastic fibres
4 represents Endothelium

(c) Mention two structural differences between A and B.
Solution:-

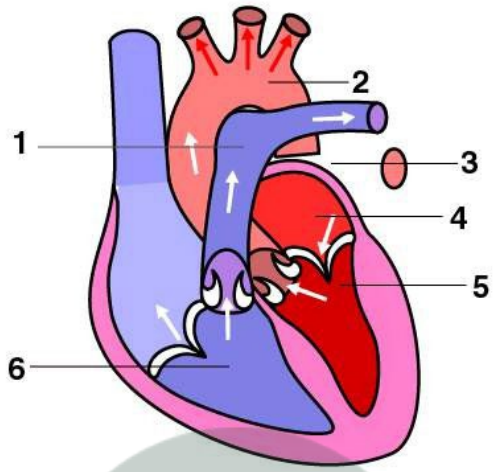
Arteries (A)	Veins (B)
1. Progressively branched, decreasing in size.	1. Progressively unite increasing in size.
2. Smallest artery breaks into arterioles.	2. Smallest vein arises from venules.
3. Have thick and more muscular walls.	3. Have thin and less muscular walls.

(d) Name the kinds of blood that flow through A and through B respectively.
Solution:-
Arteries A carry fully oxygenated blood and Veins B carry partially deoxygenated and CO_2 laden blood.

(e) In which one of the above vessels referred to in (a) above does the exchanges of gases actually take place?
Solution:-

At the capillary level the actual exchange of gases takes place.

6. The diagram given below represents the human heart in one phase of its activity. Study the same and then answer the questions that follow:



(a) Name the phase
Solution:-
Name of the phase is ventricular systole and atrial diastole.

(b) Which part of the heart is contracting in this phase? Give a reason to support your answer.
Solution:-
Ventricular muscles is the part of the heart is contracting during this phase.
Chordae tendinae hold the valves in position preventing their upturning due to pressure exerted by the contracting ventricles.

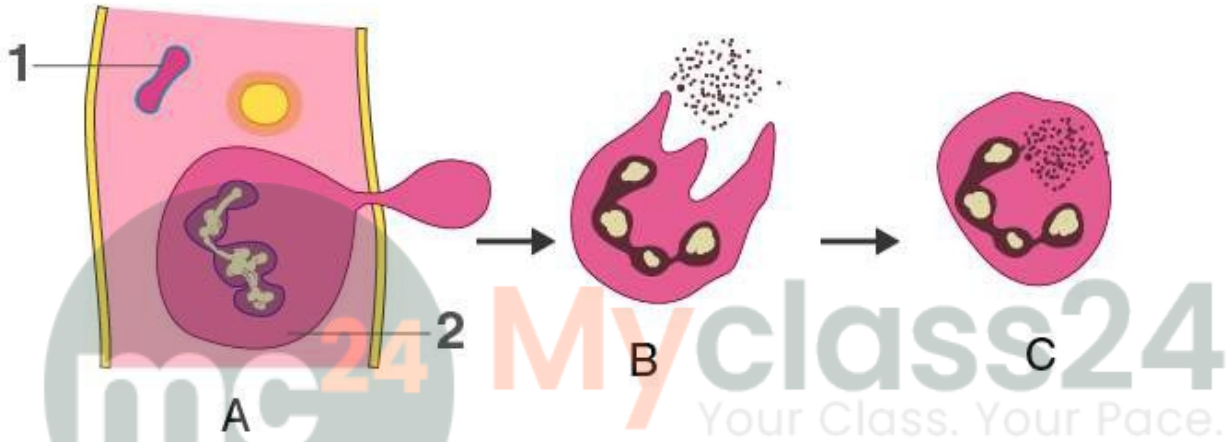
(c) Name the parts numbered 1 to 6.
Solution:-
1 represents Pulmonary Artery
2 represents Aorta
3 represents Pulmonary Vein
4 represents Left Atrium
5 represents Bicuspid Valve
6 represents Right Ventricle

(d) What type of blood flows through the parts marked '1' and '2'?

Solution:-
Pulmonary artery (Part 1) flows Deoxygenated blood
Aorta (Part 2) flows Oxygenated Blood

(e) How many valves are closed in this phase?
Solution:-
Tricuspid valve and bicuspid valve closed in this phase.

7. Study the following diagram carefully and then answer the questions that follow:



a. Name the cell labelled 1.
Solution:-
1 represents Red Blood Cells.

b. Identify the phenomenon occurring in A.
Solution:-
The phenomenon that occurring in A is Diapedesis.

c. Mention two structural differences between 1 and 2.
Solution:-

Red blood Cells (1)	White blood Cells (2)
1. Red blood cells are minute biconcave disc-like structures, flat in the center and thick and rounded at the periphery.	1. White blood cells are amoeboid and can produce pseudopodia with which they can squeeze through the walls of the capillaries into the tissues.
2. Red blood cells contains haemoglobin	2. These are differ from red blood cells in

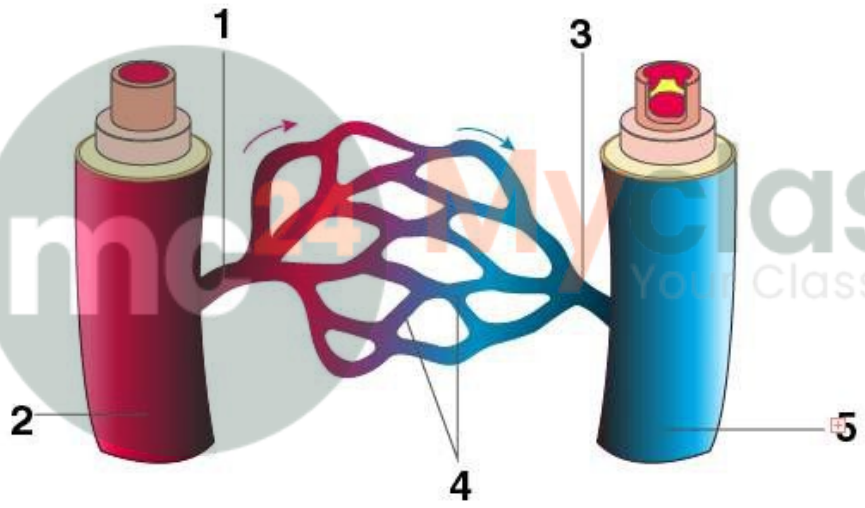
and not having nucleus cells.	having a nucleus and not containing hemoglobin.

d. Name the process occurring in B and C and state the importance of this process in the human body.

Solution:-

Phagocytosis is the process which occurs in B and C. In this process, the WBCs engulf the particles like solid substances, foreign particles and destroy them, thus preventing the occurrence of disease.

8. Given below is a diagrammatic representation of certain types of blood vessels in human body.



a. Identify the types of blood vessels numbered 1 to 5.

Solution:-

1 represents Arteriole
2 represents Artery
3 represents Venule
4 represents Capillaries
5 represents Vein

b. Where can such an arrangement be found as an example - in lungs or in heart walls?

Solution:-

Such an arrangement can be found in Lungs.