11. Human Body and Organ System
Practice Questions

Question. 1) Find out my partner.

Group ‘A’	Group ‘B’
1) Heart beats	a) 350 ml
2) RBC	b) 7.4
3) WBC	c) 37º C
4) Blood donation	d) 72
5) Normal Body temperature	e) 50 – 60 lakh/ mm^2
6) pH of oxygenated blood	f) 5000-6000 per mm^3

Ans:

Group ‘A’	Group ‘B’
1) Heart beats	a) 72
2) RBC	b) 50 – 60 lakh/ mm^2
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5) Normal Body temperature	e) 37º C
6) pH of oxygenated blood	f) 7.4

Question: 2) Complete the following table.

Organ system	Organs	Functions
1) Respiratory system		
2) Circulatory system		

Ans:

Organ system	Organs	Functions
1) Respiratory system	Nose	1) To take breath and exhale by nose. 2) Air is filtered and taken in the nose.
	Pharynx	1) Food pipe and wind pipe originate in the pharynx. Wind pipe is present in front of the food pipe. 2) There is a lid at the beginning of wind pipe. This lid closes the wind pipe during passing of food into food pipe and thereby prevents the

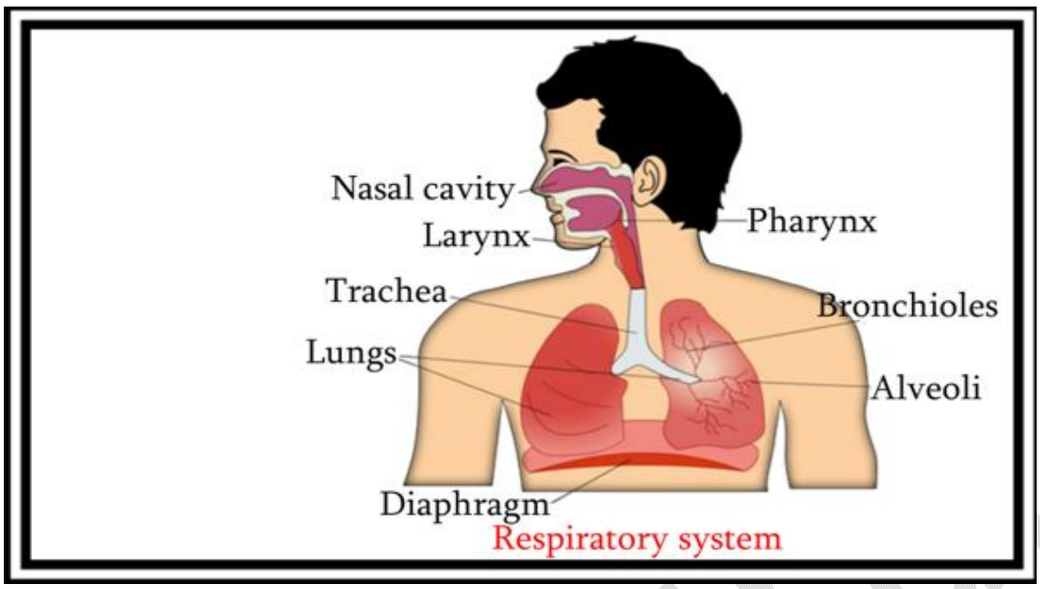
		entry of food particles into wind pipe.
	Wind pipe	The air is carried to the lungs through wind pipe. There are two branches of lungs.
	Lungs	Lungs provide space for the gaseous exchange.
	Alveoli	The oxygen is taken into the blood and carbon dioxide are removed. Does the exchange of these gaseous.
	Diaphragm	Continuous upward and downward movement of diaphragm is necessary to bring about the breathing.
2) Circulatory	Heart	Heart is a muscular organ

system		which does the blood circulation in the entire body.
	Arteries	Blood vessels which carry the blood away from heart. Except the one carrying blood towards lungs, all carry oxygenated blood.
	Veins	1) Carry the blood towards the heart from various parts of body. 2) All veins except the one carrying blood from lungs transport deoxygenated blood.
	Blood Capillaries	1) Capillary network is present in each organ of the body. 2) The necessary nutrients, oxygen, hormones, vitamins, etc. are sent through the walls of capillaries. Similarly, waste materials goes out with through this walls of

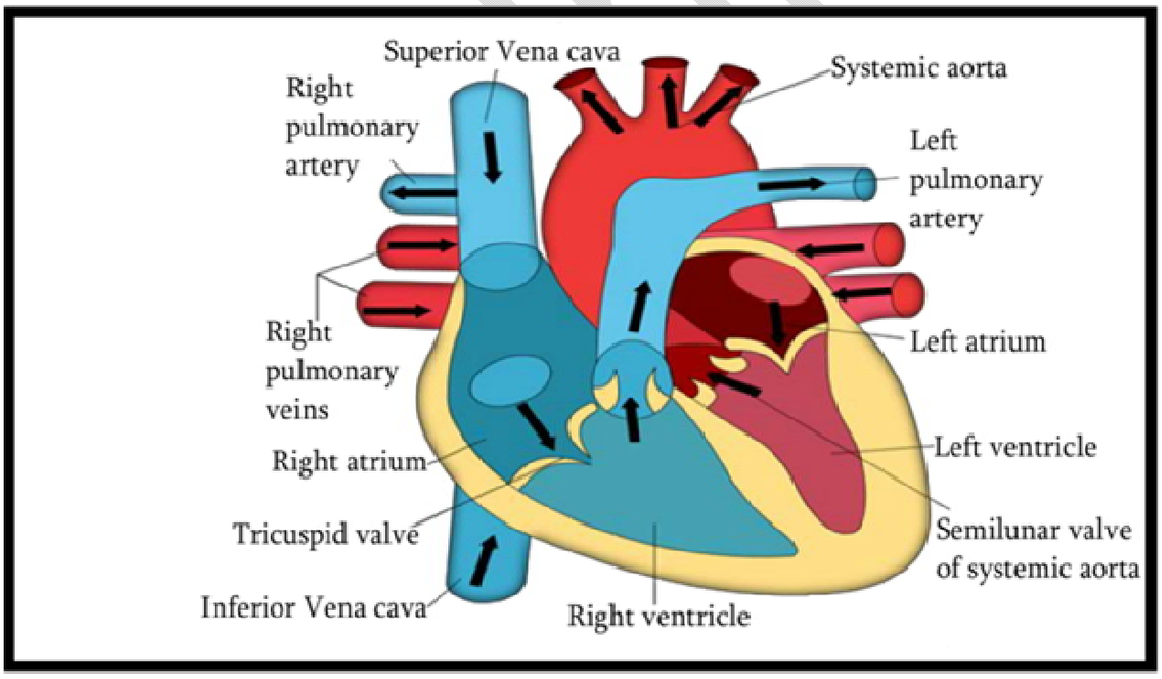
		capillaries.
	Blood cells	Various functions in the body are performed by different types of blood cells. 1) Red Blood Corpuscles – These blood cells carry oxygen and carbon dioxide. 2) White Blood Cells – White blood cells act as soldiers in our body. These cells attack the pathogens entering our body. They protect us from the microbial diseases. 3) Platelets – Platelets participate in blood clotting process.
	Plasma	The albumin, globulins, fibrinogen, prothrombin in plasma perform many functions. Blood can flow due to plasma.

Question. 3) Draw neat and labelled diagrams.

1) Respiratory system



2) Internal structure of heart



Question. 4) Explain with reasons.

1) Human blood is red coloured.

Ans: The colour of human blood is red. It contains red haemoglobin. Haemoglobin is iron-containing protein which is found in Red Blood Corpuscles.

2) Upward and downward movement of diaphragm occurs consecutively.

Ans: The breathing takes place due to continuous upward and downward movement of diaphragm. The muscles present at the thoracic helps in this process. Simultaneous rising up of ribs and lowering of diaphragm causes the decrease in pressure on lungs. Due to this, air moves into the lungs through nose. When ribs return to their original position and diaphragm rises up, pressure on the lungs increases. Due to this, air moves out from it through nose. Therefore, continuous upward and downward movement of diaphragm is necessary to bring about the breathing.

3) Blood donation is considered to be superior of all donations.

Ans: Blood cannot be made in any artificial or chemical way. Blood can be taken only from the alive blood donor. Blood is required in various situations like accidents, bleeding, parturition, surgical operations, etc. Blood donated by healthy person can save the life of needful person. Blood donation without any expectation is always lifesaving. Hence, blood donation is considered to be superior of all donations.

4) Person with ‘O’ blood group is considered as ‘universal donor’.

Ans: The person of blood group ‘O’ do not have any antigen on red blood corpuscles. If blood of such person is given to the needful patient then blood clotting does not take place. Person of the blood group ‘O’ can donate the blood to the person having any other blood group. Therefore, person with ‘O’ blood group is considered as ‘universal donor’.

5) Food must have limited amount of salts.

Ans: If the amount of salt is more in the food, in same amount sodium iron are taken in the body. The more amount of sodium causes increase in hypertension. Due to this, these persons are more likely to suffer from hypertension. This state is dangerous. Sometimes, such person is likely to die suddenly. Hence, food must have limited amount of salts.

Question. 5) Answer the following questions in your words.

1) Explain the functional correlation of circulatory system with respiratory, digestive and excretory system.

Ans: 1) Respiratory, digestive and excretory, all these three systems always work in coordination with each other.

2) The digestive system converts nutrients of complex foods into soluble nutrients.

3) These soluble nutrients are absorbed into the blood flow and then absorbed in the left of small intestines.

4) These nutrients are delivered/ sent to all cells in the process of blood circulation.

5) The oxygen from the air is absorbed in blood with the help of respiratory system. The oxygen absorbed by the help of haemoglobin is delivered to all cells. At the same time, carbon dioxide formed by metabolism process is given out by exhalation.

6) The essential nutrients absorbed by the body like glucose are slowly burnt (oxidized) with the help of oxygen and energy is formed. In this way, all these three systems always work in coordination with each other.

2) Explain the structure and function of human blood.

Ans: I) Structure of human blood – Blood is a red coloured fluid material. It is fluid connective tissue. Blood is composed of mainly two components called plasma and blood cells.

1) Plasma – Plasma is pale yellow, clear, and slightly alkaline fluid. It contains 90 to 92% water, 6 to 8% proteins, 1 to 2% inorganic salts and other components. There are various proteins in plasma such as Albumin,

Globulins, Fibrinogen and Prothrombin. Similarly, it contains inorganic ions such as calcium, sodium and potassium.

2) Blood cells – There are three types blood cells. Red blood corpuscles, White blood cells and Platelets are produced in red bone marrow.

a) Red blood corpuscles – These blood cells are small, circular, enucleated cells. This blood cell contains haemoglobin which carry the oxygen. 50-60 lakh red blood corpuscles are present in each cubic millimetre of blood. They live for about 100-127 days.

b) White blood cells – These are large, nucleated and colourless cells. 5000-10000 white blood cells are present per mm^3 of blood.

c) Platelets – These cells are extremely small and disc – shaped. 2.5 – 4 lakh platelets are present per mm^3 of blood.

II) Function of human blood –

1) Oxygen is carried via blood from lungs to cells in various parts of body and carbon dioxide from tissues to lungs.

2) Simple nutrients like glucose, amino acids, and fatty acids are taken up by blood from wall of alimentary canal and transported up to each cell in the body.

3) Blood transports the enzymes and hormones from the site of their production to the site of their action.

4) Nitrogenous wastes like ammonia, urea, and creatinine are released by tissues into blood which carries those to kidney for excretion.

5) The white blood cells produces antibodies in the blood and they protect the body from microbes and other harmful particles.

6) Body temperature is maintained constant at 37º C by vasodilation and vasoconstriction.

7) Blood does the work of maintaining the balance of minerals like sodium, potassium.

8) If bleeding occurs at the injury, platelets and a protein called fibrinogen of the blood form a clot and seal the injury.

3) Explain the importance and need of blood donation.

Ans: Blood cannot be made in any artificial or chemical way. There is approximately 5 litre blood in the body of healthy person. If a person meets an accident, bleeding occurs an amount of blood in the body decreases. Due to this, life can be endangered. If immediate care is not taken, that person's life cannot be saved. In this case, that person needs blood transfusion.

In the various situations like accidents, surgical operations, women with excessive bleeding during parturition there is need of blood transfusion on large amount. Similarly, patients of anaemia, thalassemia also need the blood. If anyone will not do blood donation then life of such needy persons will not be saved.

Question. 6) Explain the difference.

1) Arteries and veins

Arteries	Veins
1) Blood vessels which carry the blood to various parts of the body are called as arteries.	1) Vessels carrying the blood towards the heart from various parts of body are called as veins.
2) Arteries are deeply in the located.	2) Most of the veins are superficially located in the body.
3) The walls of arteries are thick.	3) The walls of veins are thin.
4) These vessels do not have valves.	4) These vessels have valves.
5) The arteries are more muscular, so oxygen containing blood reaches to every cell more effectively.	5) The veins are less muscular, so its valves keep the blood flow smoothly and due to it blood does not flow

	inverted.
6) Except the one carrying blood towards lungs, all carry oxygenated blood.	6) All veins except the one carrying blood from lungs transport deoxygenated blood.
7) The arteries has a maximum blood pressure.	7) The veins has minimum blood pressure.

2) External and Internal respiration

Externalrespiration	Internalrespiration
1) The process of taking air in body from outside and giving out air is called as External respiration.	1) The exchange of gases between cells and tissue fluid is called as Internal respiration.
2) External respiration takes place between cell and outer atmosphere.	2) Internal respiration takes place within the cells of the body.
3) Exchange of respiration and gases take place in external respiration.	3) Exchange of respiration or gases does not take place in internal respiration.
4) External respiration includes inhalation and exhalation.	4) In internal respiration, oxygen moves from blood into tissue fluid and carbon dioxide moves from tissue fluid into blood.

5) In external respiration, oxygen combines with haemoglobin.	6) In internal respiration, the chemical process in the cells produces energy.

Question. 7) Which health parameters of blood donor should be checked?

Ans: The blood donor must be strong. The haemoglobin level/ ratio of blood donor should be correct. Similarly, the amount or quantity of red blood corpuscles and white blood cells should be correct. There should not be any parasitic microorganism in the blood of blood donor. Ex. virus of dengue, plasmodium of malaria, etc. Also, an AIDS test is required for his blood. You should do various tests to make sure the person is healthy. Also make sure that they have no illness, no blood pressure. Only then the person will be eligible for blood donation.

Question. 8) Fill in the blanks using appropriate words given in the bracket.

(haemoglobin, alkaline, diaphragm, red bone marrow, acidic, voluntary, involuntary)

1) RBCs of the blood contain _____, an iron compound.

Ans: Haemoglobin

2) _____ is present between thoracic and abdominal cavity.

Ans: Diaphragm

3) Cardiac muscles are _____.

Ans: Involuntary

4) pH of oxygenated blood is _____.

Ans: Alkaline

5) Production of RBCs occurs in _____.

Ans: Red bone marrow

Question. 9) Find odd one out.

1) A, O, K, AB, B

Ans: K (All others are blood groups.)

2) Blood plasma, platelets, blood transfusion, blood corpuscles.

Ans: Blood transfusion (All others are components of blood.)

3) Trachea, alveoli, diaphragm, capillaries.

Ans: Capillaries (All others are part of respiratory system and capillaries are found everywhere in the body.)

4) Neutrophils, globulins, albumins, prothrombin.

Ans: Neutrophils (All others are proteins from plasma.)

Question. 10) Read the following paragraph and identify the disease.

Today, her child became one and half year old. However, that child does not seem to be healthy and happy. It was continuously crying and gradually becoming weak. It has shortness of breath. Its nails have become blue.

Ans: The heart of child may not be functioning properly. If there is shortness of oxygen, its nails will become blue. He is also likely to have many respiratory diseases/ disorders.

Question. 11) Your neighbouring uncle has been diagnosed with hypertension. What should he do to keep his blood pressure within normal range?

Ans: The older people generally have hypertension (high blood pressure). There are many reasons of hypertension. So it is necessary to understand/ know exactly what causes this uncle to suffer. There are many causes of hypertension such as obesity, lack of physical exercise, eating too much fast food, excessive use of salt in food,

mental stress. Uncle should take medicines and diet according to doctor's advice. Should take hypertension medications regularly. Uncle should reduce the amount of salt in the food. Also, uncle should avoid consuming oily foods. Uncle should use solutions such as yoga and meditation. Also he should reduce stress.

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