11. Human Body and Organ System

Practice Question

Q.1) Answer the following questions in detail.

1) Structure of human heart

Ans. 1) Human heart is four chambered muscular organ.

2) The size of the heart is about one's own fist and its weight is about 360 gm.

3) For protection, it is covered over by double layered pericardium.

4) The wall of the heart is made up of cardiac muscles which are involuntary in nature. They have the capacity of rhythmic beating.

5) The upper two chambers are called right and left atrium and lower two chamber are called right and left ventricle.

6) Between right atrium and right ventricle there is tricuspid valve which guards the opening. Similarly between left atrium and left ventricle there is bicuspid valve.

7. On entire right side of the heart there is deoxygenated blood.

8) On entire left side of the heart there is oxygenated blood.

2) Cellular respiration

Ans. During respiration, the glucose molecules along with some other soluble nutrients are slowly oxidized with the help of oxygen in each cell.

2) In this process the energy is released in the form of ATP, CO2 and water vapours are produced.

3) These products are not needed for the body and hence given out of the body in exhalation.

4) This process of cellular respiration is shown by the following reaction –

$C_6H_{12}O_6 + 6O_2 = 6CO_2 + 6H_2O$ + Energy (38ATP)

3) Lung

Ans. 1) Pair of lungs is the main respiratory organ in the human body. They are located in thoracic cavity.

2) They are present on either sides of heart.

3) Each lung has double layered pleural membranes.

4) Trachea bifurcates into two bronchi. Each bronchus enters lung on its side and divide and re – divide into fine bronchioles.

5) At the end of each bronchiole there is alveolus. Alveolus is surrounded by capillary network.

4) Diaphragm

Ans. 1) Diaphragm is a muscular partition that divides the thoracic and abdominal cavity.

2) Located at the base of thoracic cage, it is very important in breathing movements.

3) Diaphragm can undergo consecutive upward and downward movements.

4) These movements along with movements of thoracic cage cause rise and fall of the pressure in the thoracic cavity.

Q.2 Write short note.

1) Why are the veins provided with valves? Why do the arteries have thick wall?

Ans. Valves prevent the backflow of the blood during the blood circulation. Arteries have blood flowing with great pressure as the heart pushes blood into the arteries with 120 mmHg pressure. The flowing blood exerts pressure on the arterial wall. In order to sustain this pressure the arterial walls are thick.

2) Haematology

Ans. The branch of medical science in which the blood, haemapoietic organs (organs that produce blood cells) and blood disorders are studied is called haematology.

1) What is meant by blood circulation?

Ans. The transport of gases or substances that are absorbed or synthesized from one region of the body in the other through the medium of blood is called circulation.

Q.3 Give scientific reasons.

1) A very large number of alveoli is present in lungs, which are covered over by capillary network.

Ans. Due to very large number of alveoli the surface area of the lungs is increased many a times for the gaseous exchange. The alveoli are covered over by capillary network for rapid gaseous exchange. The oxygen is taken in the body and at the same time carbon dioxide is given out of the body only by the gaseous exchange occurring at the alveolar surface.

2) Heart is covered by double layered pericardial membrane.

Ans. Pericardium is the protective double membrane that covers the heart. In between the two layers of this membrane there is protective fluid. The pericardium and the fluid together protect the heart from friction and mechanical shock. Since heart is a vital organ, it is well protected by such pericardial membrane.

3) Veins are provided with valves.

Ans. Valves prevent the backflow of the blood. Blood in the veins is not under great pressure so it is likely that it may flow back. But valves prevent such movements. Therefore they are provided with valves.

Q. 4 Define the terms.

1) Systolic pressure

Ans. The maximum blood pressure exerted by the flowing blood when the heart is contracting is called systolic pressure.

2) Thermoregulation

Ans. Maintenance of the body temperature to a constant level by performing vasoconstriction or vasodilation is called thermoregulation.

3) Cellular respiration

Ans. Production of energy in the form of ATP from oxidation of glucose and other soluble nutrients is called cellular respiration.

Q. 5 Identify the correlation.

1) Dr. Corl Landsteiner : Discover of ABO blood group system : : _____ : Discovery of Rh factor.

Ans. Wiener and Landsteiner

2) Amoeba : Diffusion through water : : Earthworm : _____.

Ans. Diffusion through soil

Q.6 Identify the odd one.

1) Nose, Lungs, Heart

Ans. Heart (Part of circulatory system)

2) Calcium, sodium, Globulin

Ans. Globulin (Globulin is a protein in blood)

Q.7 State whether statement is true or false.

1) The four main groups of human blood are A, B, AB and O.

Ans. True.

2) Human heart is three chambered muscular organ.

Ans. False (Human heart is four chambered muscular organ)

3) Atria are the smaller distributing chamber.

Ans. False (Atria are the smaller receiving chamber)

4) Veins are thin walled.

Ans. True.