Very Short Answer Questions

Q.1. Veins have valves which allow blood to flow only in one direction. Arteries do not have valves. Yet the blood flows in one direction only. Can you explain why?

[NCERT Exemplar]

Ans. Blood flow in arteries is rapid and at a high pressure. Also arteries have thick elastic walls.

Q.2. What is the special feature present in a human heart which does not allow mixing of blood when oxygen-rich and carbon dioxide-rich blood reach the heart?

[NCERT Exemplar]

Ans. Heart is partitioned into four chambers.

Q.3. Name the organ which is located in the chest cavity with its lower tip slightly tilted towards the left.

[NCERT Exemplar]

Ans. Heart

Q.4. What are capillaries?

Ans. In the organs and tissues, the arteries divide into a network of very thin tubes called capillaries.

Q.5. What is the relationship between the rate of heartbeat and pulse rate?

Ans. Pulse rate is equal to the number of heart beats per minute.

Q.6. Who discovered blood groups in humans?

Ans. Karl Landsteiner discovered blood groups in humans.

Q.7. What is the function of the plasma?

Ans. Plasma contains large protein molecules, blood cells and nutrients which it circulates throughout the body. It is responsible for the flowing of blood.

Q.8. What is the function of haemoglobin?

Ans. Haemoglobin helps in the transport of oxygen and carbon dioxide in the body by binding to them.

Q.9. How is urine examination useful to the doctor?

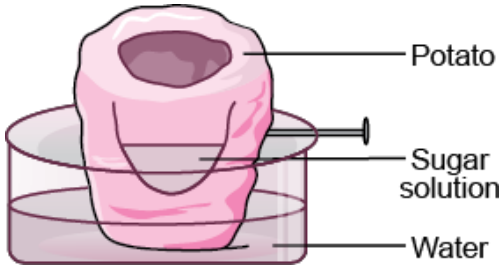
Ans. Urine examination determines whether the kidney is working properly or not.

Q.10. What are the constituents of urine?

Ans. Urine is 95% water, 2.5% urea and 2.5% other waste products.

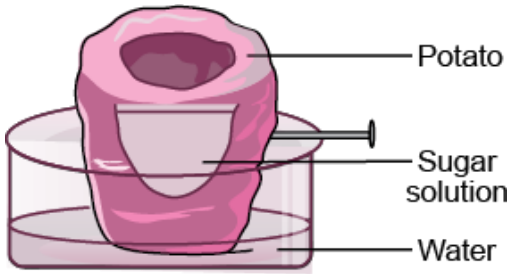
Short Answer Questions

Q.1. Look at figure. Draw another figure of the same set-up as would be observed after a few hours.



[NCERT Exemplar]

Ans.



Q.2. Paheli uprooted a rose plant from the soil. Most of the root tips, with root hair were left behind in the soil. She planted it in a pot with new soil and watered it regularly. Will the plant grow or die? Give reason for your answer.

[NCERT Exemplar]

Ans. Possible answers are:

- Without the root hairs the roots will not be able to absorb water and nutrients and the plant will die.
- The stem of the rose plant may grow new roots and the plant will live.
- The rose plant may not be able to survive in a different type of soil.

Q.3. Boojho's uncle was hospitalised and put on dialysis after a severe infection in both of his kidneys.

(a) What is dialysis?

(b) When does it become necessary to take such a treatment?

Ans. (a) In dialysis, blood is filtered periodically through an artificial kidney.

(b) In the event of kidney failure.

Q.4. (a) Name the only artery that carries carbon dioxide-rich blood.

(b) Why is it called an artery if it does not carry oxygen-rich blood?

[NCERT Exemplar]

Ans. (a) Pulmonary artery

(b) It is so because arteries carry blood away from the heart.

Q.5. Name the process and the organ which helps in removing the following wastes from the body.

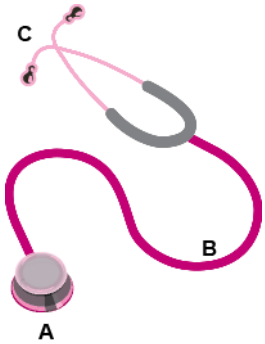
a. **Carbon dioxide**
b. **Undigested food**
c. **Urine**
d. **Sweat**

[NCERT Exemplar]

Ans.

Process	**Organ**
(a) Exhalation **(b)** Egestion **(c)** Excretion **(d)** Perspiration (sweating)	Lungs Large intestines and anus Kidneys Sweat glands

Q.6. Observe figure given below and answer the given questions:



(a) Name the instrument.

(b) Label the parts A, B and C.

[NCERT Exemplar]

Ans. (a) The given instrument is stethoscope.

(b) A—Diaphragm B—Tube C—Ear pieces

Q.7. Paheli noticed water being pulled up by a motor-pump to an overhead tank of a five-storeyed building. She wondered how water moves up to great heights in the tall trees standing next to the building. Can you tell why?

[NCERT Exemplar]

Ans. Water constantly evaporates from the leaves of the trees to form water vapour. This process is known as transpiration. This loss of water generates a “suction pull” which draws water up the tall trees.

Q.8. List the functions of the blood.

Ans. The following are the functions of the blood:

a. It transports oxygen from the lungs to the body cells and carbon dioxide from the cells to the lungs.
b. Blood carries in its plasma absorbed food, minerals, salts and vitamins from the small intestine to the liver for processing. These materials are then transported to the heart for distribution to all parts of the body.
c. It transports liquid waste from the body cells to the kidneys for removal from the body.

Q.9. Give reasons for the following statements.

Q. Ventricles have thicker walls than auricles.

Ans. This is because ventricles pump blood to lungs and to different body parts for which they need strength.

Q. Valves are present at the opening of auricles into ventricles.

Ans. Valves are present at the opening of auricles into ventricles to prevent backflow of blood.

Q. The walls of arteries are thick.

Ans. The walls of arteries are thick because they carry blood at high pressure.

Q.10. What is the function of the circulatory system in humans?

Ans. The function of circulatory system is to transport oxygen, carbon dioxide, hormones and excretory wastes from one region to another.

Q.11. How are oxygen and food circulated in Hydra?

Ans. Hydra does not have specialised organs for circulation. Oxygen and food are diffused into the body and undigested material is diffused out.

Long Answer Questions

Q.1. Read the following terms given below.

root hairs **arteries** **atria** **ureter**	**xylem** **kidneys** **capillaries** **phloem**	**urethra** **veins** **heart** **urinary bladder**

Group the terms on the basis of the categories given below.

[NCERT Exemplar]

Q. Circulatory system of animals

Ans. Arteries, atria, capillaries, veins, heart.

Q. Excretory system in human

Ans. Ureter, kidneys, urethra, urinary bladder.

Q. Transport of substances in plants

Ans. Root hairs, xylem, phloem.

Q.2. While learning to ride a bicycle Boojho lost his balance and fell. He got bruises on his knees and it started bleeding. However, the bleeding stopped after some time.

a. **Why did the bleeding stop?**
b. **What would be the colour of the wounded area and why?**
c. **Which type of blood cells are responsible for clotting of blood?**

[NCERT Exemplar]

Ans. (a) The bleeding stopped because blood clot had formed.

(b) The colour of the wounded area would be dark red due to clotting of blood.

(c) Platelets are responsible for clotting of blood.

Q.3. Give an experiment to show the upward movement of water in plants.

Ans. Take a potted plant.

Cover it by polythene so that its roots along with soil get completely covered. This will prevent evaporation of water from the soil.

Put a bell jar over the potted plant.

Apply vaseline on the rim of the jar, this will prevent air from entering the jar from outside.

Keep this set-up in the sunlight for some time.

You will find drops of water on the inner side of the bell jar. These drops are due to the process of transpiration.

Q.4. Distinguish between the following.

Q. Arteries and Veins

Ans.

S. No.	Arteries	Veins
i.	They carry oxygenated blood from heart to different organs.	They carry deoxygenated blood from the organs to the heart.
ii.	They are usually deep-seated.	They are superficial in position.
iii.	They do not contain valves.	They contain valves at regular intervals.

Q. Xylem and Phloem

Ans.

S. No.	Xylem	Phloem
i.	It transports water from roots to different parts of plant.	It transports food from the leaves to different parts of plant.
ii.	The movement of water is unidirectional. It is a living tissue.	The movement of food is bidirectional.
iii.		It is non-living at maturity.

Q.5. Distinguish between the following.

Q. Excretion and Transpiration

Ans.

S. No.	Excretion	Transpiration
i.	Removal of waste in the form of solids, liquids or gases from the body of organisms.	The constant evaporation of waterfrom the leaves to form water vapour.
ii.	It takes place in all living organisms.	It takes place only in plants.

Q. Blood and Plasma

Ans.

S. No.	Blood	Plasma
i.	It is the connective tissue in human body.	It is the watery fluid of blood.
ii.	It is red in colour.	It is pale yellow in colour
iii.	It contains two types of cells—white blood cells and red blood cells.	It does not contain any cells but is rich in nutrients.

HOTS (Higher Order Thinking Skills)

Q.1. Why should sports persons and athletes drink more water?

Ans. Sports persons expend a lot of energy and, therefore, larger amount of water is evaporated from their bodies. To prevent dehydration they should drink more water.

Q.2. Why plants absorb a large quantity of water from the soil, then give it off by transpiration?

Ans. Because plant utilise the absorbed water in various activities like photosynthesis, regulation of temperature and for movement of nutrients.