

APPENDIX-A

Quiz (Section-1)

Name:

Date:

Roll No.:

Std:

Tick the correct answers.

10 Marks

1. Substances that our body needs to transport are
 - a. Food and Oxygen
 - b. Water and Minerals
 - c. Body Wastes
 - d. All of these
 2. In animals, Carbon Dioxide is excreted in the form of _____
(inhaled/exhaled) air.
 3. Cell diffusion is the movement of molecules or gases from
 - a. A region of higher concentration to a region of lower concentration
 - b. A region of lower concentration to a region of higher concentration
 - c. Across Semi permeable membrane
 - d. Across permeable membrane
 4. Which of the following part is not a constituent of Circulatory system?
 - a. Heart
 - b. Veins
 - c. Kidney
 - d. Arteries
 5. Pseudopodia are formed in _____.
 - a. Euglena
 - b. Bacteria
 - c. Amoeba
 6. Blood is the medium for transport of all the necessary materials to different parts of the body. True/ False
 7. Define Endocytosis.
 8. Which is the example of multicellular organisms?
 - a. Euglena
 - b. Algae
 - c. Paramecium
-

9. Energy is released as a result of _____.

- a. Exercise
- b. Blood circulation
- c. Oxidation of food
- d. Reduction of food

10. Define the term Unicellular.

(Section- 2)

10 Marks

11. Circulatory system mainly consists of following parts -

- 1 _____
- 2 _____
- 3 _____

12. Thick muscular organ in human body is known as _____

- a. Heart
- b. Kidney
- c. Pancreas

13. Blood constitutes about ____% of the body weight.

- a. 8
- b. 10
- c. 12

14. Red blood cells are _____ in shape.

- a. Spiral
- b. Flat and disc like
- c. Round and fluffy

15. Veins carry blood _____

- a. from heart to organ
- b. from organ to heart
- c. from heart to brain

16. Haemoglobin is present in _____

- a. Red blood cell
 - b. White blood cell
 - c. Platelets
-

17. Which of the following cells protect our body against diseases?

- a. White blood cells
- b. Red blood cells
- c. Platelets

18. State one difference between arteries and veins.

19. Which part helps to connect arteries to the veins?

- a. Heart
- b. Brain
- c. Capillaries

20. Blood cells that help to stop bleeding in human beings are _____.

- a. Red blood cells
- b. White blood cells
- c. Platelets

(Section – 3)

10 Marks

21. A normal rate of heart beats is about _____ times a minute.

- a. 30 to 40
- b. 60 to 80
- c. 90 to 100

22. Blood in the right side of the heart is completely separated from the left side through

- a. valve
- b. arteries
- c. veins

23. The _____ pumps oxygenated blood to all parts of our body.

- a. Right ventricle
 - b. Left ventricle
 - c. Auricle
-

24. Which instrument is used to measure Blood Pressure?
- a. stethoscope
 - b. sphygmomanometer
 - c. microscope
25. Pulmonary artery carries _____
- a. Deoxygenated blood
 - b. Oxygenated blood
 - c. Impure blood
26. Which of the following part of a heart carries blood to different parts of the body?
- a. Aorta
 - b. Pulmonary veins
 - c. Pulmonary arteries
27. The right atrium opens into _____.
- a. Right ventricle
 - b. Left atrium
 - c. Left ventricle
28. How many chambers are present in human heart?
- a. Three
 - b. Four
 - c. Two
29. The throbbing sensation in our body is called
- a. Heart beat
 - b. Pulse
 - c. Palpitation
30. Which of the following part helps to pump blood to the farthest part of the body through aorta?
- a. Left auricle
 - b. Left ventricle
 - c. Right ventricle
-

(Section – 4)

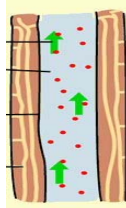
10 Marks

31. Transportation of water inside the plant body occurs through
- a. Xylem
 - b. Phloem
 - c. Roots
32. The process by which prepared food is sent to all parts of plants is called
- a. Transpiration
 - b. Translocation
 - c. Respiration
33. The process of removal of waste from the cells of living organisms is called
- a. Excretion
 - b. Respiration
 - c. Digestion
34. What is the function of Xylem?
- a. Transport water and minerals from the root
 - b. Transport food from the roots
 - c. Transport gases from the roots
35. Water is being continuously lost from the leaves by the process of _____.
- a. Respiration
 - b. Transpiration
 - c. Translocation
36. Carbon dioxide is formed during the process of _____
- a. Transpiration
 - b. Digestion
 - c. Respiration
37. Animal waste mainly includes _____.
- a. Nitric acid
 - b. Urea
 - c. Hydrochloric acid
38. In plants low pressure and pulling force are created as a result of
- a. Loss of water through leaves
 - b. Loss of nutrients
 - c. Loss of minerals
-

39. Which part of the plant helps in manufacturing of food?

- a. Leaves
- b. Stems
- c. Roots

40. Identify the picture.



(Section – 5)

10 Marks

41. The functional unit of a kidney is ____

- a. Urethra
- b. Nephrons
- c. Urinary bladder

42. Write any two ways of excretion of waste in Human body.

1. _____ 2. _____

43. Formation of less urine is a sign of ____.

- a. Indigestion
- b. Malnutrition
- c. Dehydration

44. Write the names of any two organs which are constituents of excretory system.

1. _____ 2. _____

45. Urea is produced as a result of the combination of ____.

- a. O₂ and Ammonia
- b. CO₂ and Ammonia
- c. H₂ and Ammonia

46. Urine contains almost ____% of water.

- a. 90
- b. 80
- c. 95

47. Kidneys are _____ in shape.

- a. Tubular
- b. Bean
- c. Round

48. Dialysis is a method for _____.

- a. Removing toxic substances
- b. Removing nutrients
- c. Repairing cells

49. Waste substances present in the blood are removed with the help of _____.

- a. Kidney
- b. Urethra
- c. Urinary bladder

50. Plants excrete their wastes in the form of _____

- a. Resins
- b. Gums
- c. a and b both

APPENDIX-B

Feedback Form

Name:

Roll No.

Date:

School:

1. Have you ever studied with a group of your friends? _____ (Yes/No)

2. Did you like studying in such an atmosphere where you learn in a group of friends?

If Yes then Why? Give at least three reasons.

- 1.
- 2.
- 3.

If No then Why? Give at least three reasons.

- 1.
- 2.
- 3.

3. Do you feel working with friends is better than working alone?
_____ (Yes/No)

4. Do you feel that you learnt a few things from your friends?
_____ (Yes/No)

5. Do you feel more comfortable learning with your friends than learning with your teacher? _____ (Yes/No)

6. Did you feel free to make mistakes when you worked with your friends than while learning with your teacher? _____ (Yes/No)

7. Did you feel that learning with your friends has helped you to improve your understanding of difficult concepts? _____ (Yes/No)

8. Will you in future try to discuss and learn in groups with your friends?
_____ (Yes/No)

APPENDIX-C

SESSION WISE IMPLEMENTATION OF COOPERATIVE LEARNING BASED LESSON PLANS

DAY	TOPIC	OBJECTIVES	SUB TOPICS & ELEMENTS	TLMs	GROUP TASK
Day-1	Orientation	To develop the skills for group learning	Arranging Jumbled Words	Cards of Jumbled words	Each group had to identify the correct word, discuss about it and present their views.
Day 2	Transportation	To acquaint the students with the process of transportation	Transportation in Unicellular Organisms.	PPT, Pictures of unicellular organisms	Groups were provided with handouts having questions to solve in a group.
Day 3	Circulatory System	To enable students to differentiate between the	Blood and Blood Vessels	PPT, Pictures of Different	Groups were provided with the

		types of Blood Cells, state their functions and compare the blood vessels present in body		types of Blood Cells	pictures of blood cells. Students classified and stated their function
Day 4	Circulatory System	- To enable the students to prepare a model of Heart - To enable the students to label correctly parts involved in the structure of Heart	Heart	PPT, Video Clip, Picture sheet	Picture sheets were given to the students in a group. Students had to guess the parts of Heart
Day 5	Human Excretory System	- To enable the students to draw a diagram of Human excretory system - To enable the students to state the modes of	Excretory System	PPT, Video Clip, Cue cards	Cue cards were given in groups to assess individual understanding about excretory system

		excretion.			
Day 6	Transportation	- To make students aware of the structure of xylem and phloem - To make students write major differences of xylem and phloem	Transportation in plants through xylem and phloem	PPT, Pictures	Pictures were given in a group about experiment related to Transpiration in Plant. Students had to write aims of experiment and conclusion derived from pictures.

Appendix C (I)

Goblal Wrnimag

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Aidc Ainr

Ucelinuallr

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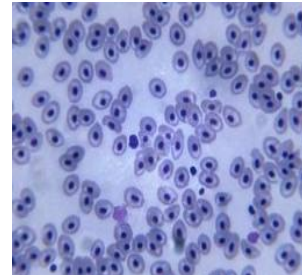
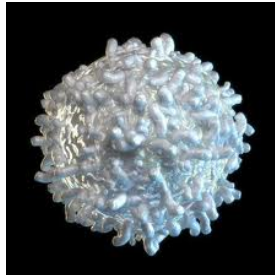
APPENDIX C (II)

Questions

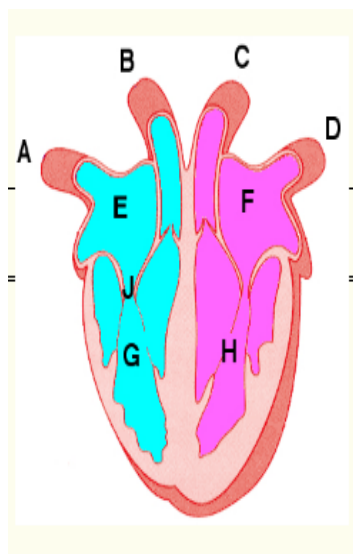
1. Write the definition of Cell diffusion.
 2. What is Pseudopodia?
 3. What is the function of Contractile Vacuole?
 4. Explain the transportation process in Hydra.
-

5. Write the difference between Endocytosis and Exocytosis.

APPENDIX C (III)



APPENDIX C (IV)



- A Vena Cava
- J Valve
- G Right Ventricle
- F Left Atrium
- D Pulmonary Vein
- B Pulmonary Artery
- H Left Ventricle
- E Right Atrium

APPENDIX C (V)

I am the functional unit of Kidney.

A-Nephron

My function is to filter impure blood.

A-Kidney

I am the combination of carbon dioxide and Ammonia

A-Urea

I help in connecting kidney with urinary bladder.

A-Uterus

Method for removing toxic materials from blood is
called_____

A-Dialysis

APPENDIX C (VI)

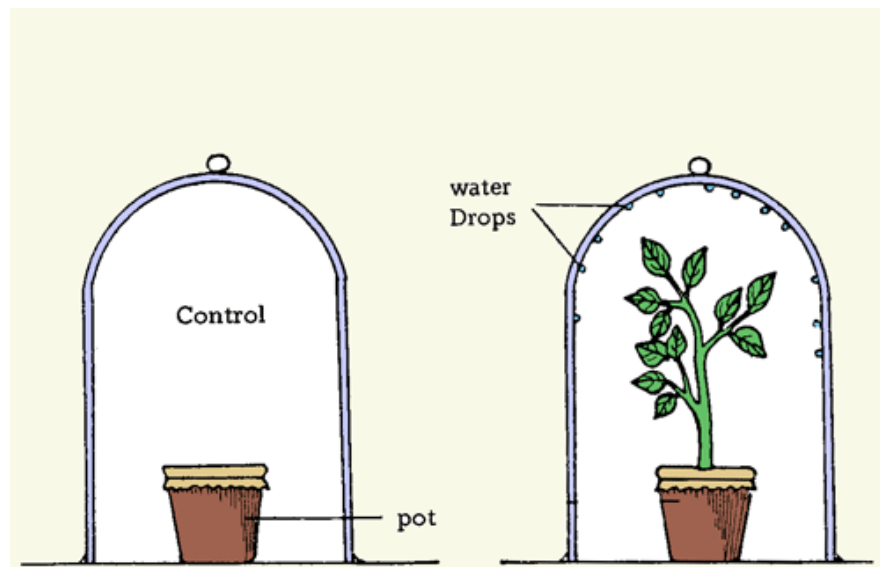
1



2



3



APPENDIX D

Transport of substances in Animals and Plants.

The body of every organism (plant or animal) is made up of cells. A large organism has millions and millions of cells in its body. In order that the organism may be able to maintain its life and survive, all its cells must be supplied with essential substances like food, oxygen, water, etc. So, some arrangement is required inside an organism which can carry the essential substances to all its parts so that they reach each and every cell of its body. All the substances are not utilized by our body so as a result of it some of the waste product is generated which needs to be excreted by our body. It is done by Excretory system. In this chapter we will learn about Circulatory system and Excretory system in plants and animals.

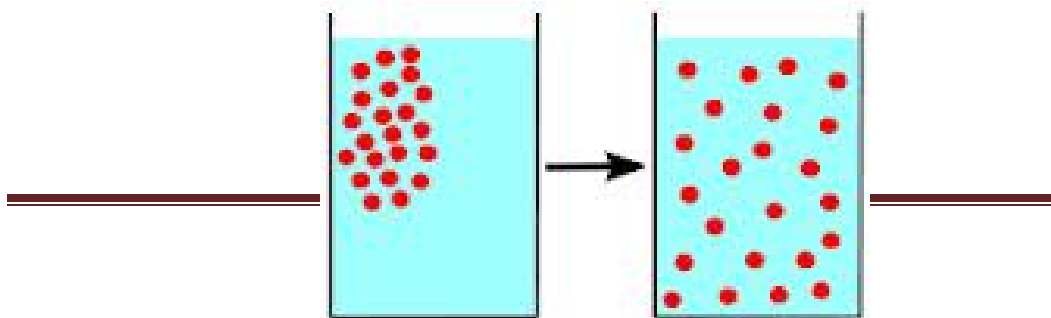
What do you mean by transportation?

In everyday language, 'transport' means 'to carry things from one place to another'. In biology, transport is a life process in which a substance absorbed (or made) in one part of the body of an organism is carried to other parts of its body. Large organisms (large plants and animals) need transport systems in their bodies to supply all their cells with food, oxygen, water, and other materials. We will learn how plants and animals carry substances from one part of their body to another.

Transportation in Unicellular Organism

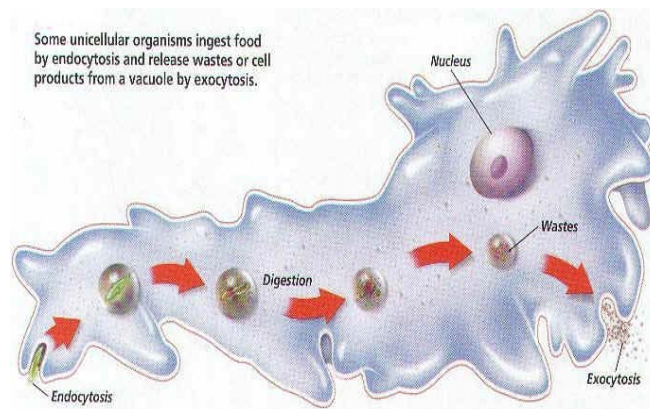
Amoeba, *paramecium* and *Euglena* are single-celled organisms. They use their cell surface as a point of exchange with the outside environment; it has no need for a transport system. They get nutrients and oxygen directly through cell diffusion.

Cell diffusion: - The Movement of a fluid from an area of higher concentration to an area of lower concentration is called cell diffusion.



Amoeba

It is a unicellular organism. It ingests food particles by forming pseudopodia (it is also called false leg) and forms food vacuole. This process is called as endocytosis. It is also called phagocytosis. (Pseudopodia are a finger-like projection generated by amoeba.) Food particles are digested inside the cell and nutrients get absorbed from the vacuole. During the process of digestion, some waste product is generated which is removed by the process of exocytosis.

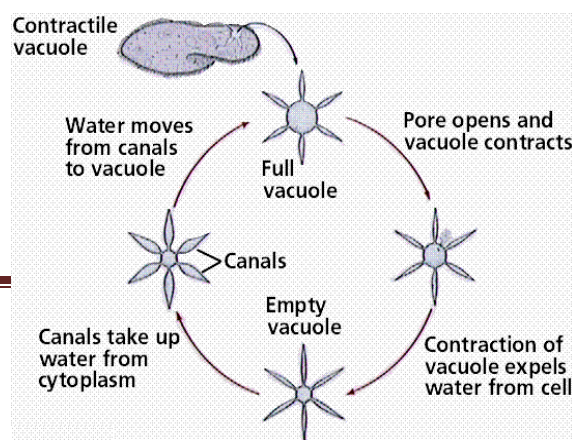


What is Exocytosis?

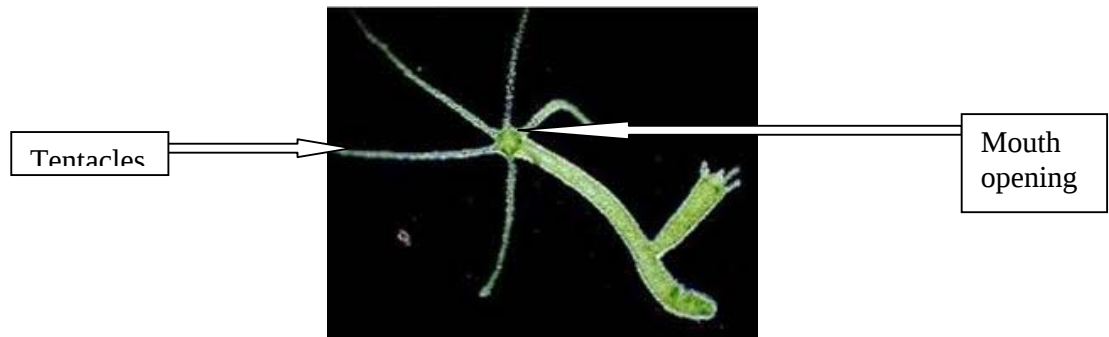
Secretion of waste material from the cell to the outside environment is called exocytosis.

Paramoecium

Cells of paramoecium are hypertonic (more concentrated) than the outside environment, so water comes in through the pore. If this continuously happens, the cell may burst. To prevent the bursting of the cell, a contractile vacuole is present inside the cell. It takes water from the cell by canals and expels it out and prevents bursting of the cell.



Hydra -It lives in freshwater. Unlike other species, the hydra lives in isolation. It has a maximum height of 2.5 cm, it is a fixed animal, but can also move. It has no excretory and respiratory system. The food captured by the tentacles and transported in the mouth opening which is further transported in the digestive cavity. Undigested food residues are removed back through the mouth opening.



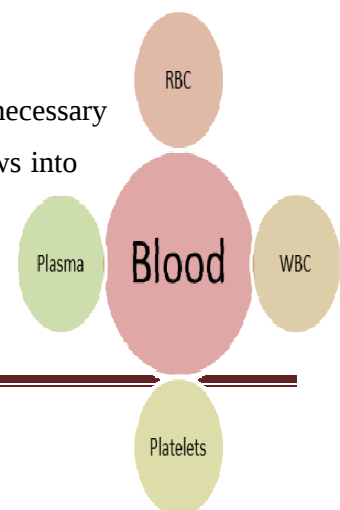
Transportation in multicellular organisms

In multicellular organisms transportation of substances is done by specialized system called Circulatory system. It consist of

- a. Blood
- b. Blood vessels : - Arteries, Veins and Capillaries
- c. Heart

Blood

Blood is the medium for the transportation of all the necessary materials to different part of the body. It is the fluid that flows into the blood vessels. It is the medium through which nutrients, gases, water and waste products are transported inside the body. It constitutes about 8% of the total body weight. It

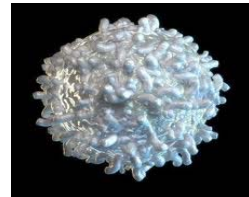


consists of several cells floating in straw coloured liquid called plasma. These cells are a) Red blood cells (RBC) b) White blood cells (WBC) and c) Platelets

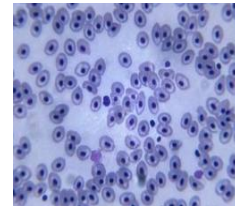
RBC: - They are flat and disc like in shape with a depression in center. They contain the red pigment, haemoglobin. This haemoglobin combines with oxygen to form oxyhaemoglobin which help in transporting oxygen throughout the body.



WBC: - They are white in colour and larger than RBCs but do not have haemoglobin. They move actively inside the body and protect it against disease causing microorganisms by destroying them.



Platelets: - It helps in preventing excess bleeding. When we get a cut then platelets come in the contact of air and form a red dark clot.



Blood Vessels

Blood flows through our body in a complex system of tubes called blood vessels. There are three types of blood vessels: arteries, veins and capillaries.

What is the difference between arteries and veins?

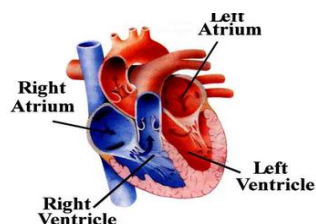
Arteries	Veins
1. They carry blood away from the heart to different parts of our body.	1. They carry blood to the heart from the different part of our body
2. They are thick walled tubes.	2. They have thinner walls.
3. They are deeply placed under the skin, and blood moves under a high pressure.	3. They are superficially placed and blood does not move under pressure.
4. There are no valves present inside	4. There are a series of valve present

the arteries.	in the veins. These prevent the blood from flowing back to the organs.
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Heart

It is a muscular organ located in the chest cavity with its lower tip slightly tilted towards left. Heart pumps blood to different part of our body. To avoid the mixing up of blood rich in oxygen with the blood rich in carbon dioxide, the heart has four chambers.

- i. The right auricle
- ii. The left auricle
- iii. The right ventricle
- iv. The left ventricle



The walls of the chambers made up of muscles.

These muscles contract and relax rhythmically. This rhythmic contraction followed by relaxation which constitutes a heartbeat. A normal heart beats about 60 to 80 times a minute. We can hear our heartbeat with the help of an instrument called Stethoscope. The rhythmic beating of the various chambers of the heart maintains circulation of blood and transport of substances to the different parts of the body.

As the heart beat and forces blood through our body we would feel a throbbing sensation at any point where an artery comes close to the surface of your skin, such as wrist, neck and upper arm. This throbbing sensation is called the pulse.

Functioning of Heart

The heart is the pump of human circulatory system. Oxygenated blood from the lungs travelled through large veins and emptied into left side of a heart in a left atrium. An artery carries pure or oxygenated blood and veins carries impure or deoxygenated blood but pulmonary artery carries deoxygenated blood while pulmonary veins carries oxygenated blood.

From the left atrium blood flows to the left ventricle through a one way valve called left atrioventricular valve. 70% blood moves by pumping of the heart and rest of the 30% moves when left atrium contracts. The contraction of left ventricle forces blood exactly into the opening that leads to the largest artery of the body called aorta. The

atrioventricular valve immediately closes down so that backflow of the blood into the left atrium is prevented. Many arteries are branched from the aorta which carries oxygen rich blood to all parts of the body. This process is known as systemic circulation. It brings blood to neck, head and to the rest of the organs of our body. It gives oxygen to the body tissues and receives carbon dioxide. The blood flows into the arterial system eventually returns to the heart after flowing through capillaries. As it returns, it passes through a series of veins and enters into the right side of a heart. Two large veins collect blood from systemic circulation. The superior vena cava drains blood from the upper body and the inferior vena cava drains blood from the lower body. These veins dump deoxygenated blood into the right atrium. Blood passes from the right atrium to right ventricle through one way valve called right atrioventricular valve. During the contraction of the right ventricle, blood moves towards the upper side in the pulmonary artery or pulmonary trunk. Pulmonary trunk is subsequently branched into the arteries that carry deoxygenated blood to the lungs. The blood then returns from the lungs to the left side of the heart and replenish with the oxygen. Carbon dioxide is excluded by the lungs.

Transport in Plants:

Transport system in plants is less elaborate than in animals (including human beings). Plants are less active, so their cells do not need to be supplied with materials so quickly. Also, due to the branching shape of a plant, all the cells of a plant can get oxygen for respiration and carbon dioxide for photosynthesis directly from the air by diffusion. So, the only substances which are to be supplied to a plant through a transport system are water and minerals (which they can't get from the air).

Another job of the transport system of plants is to transport food prepared in the leaves to the various parts of the plant like stems, roots, etc. The plants have two types of conducting tissues called xylem and phloem. Xylem tissues carry water and minerals whereas phloem tissues carry the food prepared by the plants. We can now say that:

The plants have two transport systems:

1. Xylem which carries water and minerals from the root to the leaves, and
-

2. Phloem which carries the food materials which the plant makes.

	Phloem	Xylem
Function:	Transportation of food and nutrients from leaves to storage organs and growing parts of plant.	Water and mineral transport from roots to aerial parts of the plant.
Movement:	Bidirectional (Moves up or down the plant's stem from "source to sink")	Unidirectional (Moves up the plant's stem)
Structure:	Tubular with soft walled cells	Tubular with hard walled cells

Water is continuously lost from the leaves by the process of transpiration. This creates a low pressure and a pulling force.

Food is manufactured by the leaves. Once the food is prepared, it needs to be sent to the all parts of the plant body. The process by which this takes place is called translocation. Phloem act as a pipeline and carry prepared food to all parts of the plant body.

Excretory system

There are a large number of chemical reaction takes place inside a living body due to which a variety of waste product are being constantly created inside. The living body needs to remove these wastes. The process of removal of wastes from the cells of living organisms is called excretion. The organ system responsible for the removal of wastes is called excretory system.

Excretion in Animals

Unicellular organisms do not have well developed excretory system. They excrete all the waste by direct diffusion through the membrane.

Excretion in Human

Human body excretes wastes in the following ways

Through Exhaled air: Carbon dioxide formed during the process of respiration is exhaled out from the body.



Through sweat: our skin also acts as an excretory organ. It has a small outer opening called sweat pores. Our body gets rid of a small quantity of urea, salts and water through sweat secreted by the sweat glands present under the skin. Sweating is important because it helps in regulating body temperature. It helps to keep a body cool by losing body heat.

Through the Kidney: Kidney absorbs useful substances from the blood and remaining wastes are secreted in the form of urine.

Human Excretory System

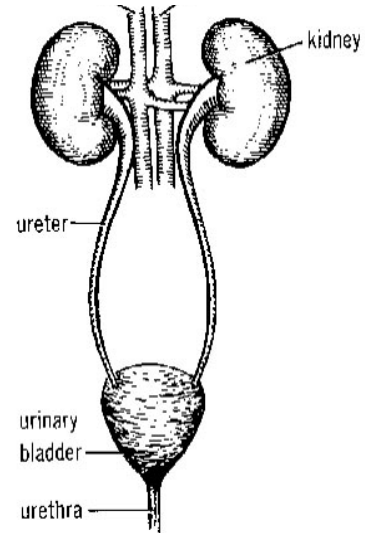
It mainly comprises of

A pair of reddish, bean shaped organ called Kidney

Two tubes called Ureters

Urinary bladder

Urethra



A number of nitrogenous wastes such as urea and uric acid are formed inside our body. Urea is a result of combination of carbon dioxide and ammonia. Waste substances present in the blood are removed with the help of the kidney. When blood enters into the kidney, the useful substances are absorbed back into the blood. Waste substances get dissolved in water and are removed as urine. This absorption is done by the functional unit of the kidney called nephrons. Urine thus formed is collected through Ureters into the urinary bladder. Then, urine is passed out from the body through the opening at the end of urethra. Urine contains almost 95% water and rest 5% urea, uric acid and minerals.

Functions

- Kidney: Formation of urine takes place inside the kidney.
- Ureters: It helps in transfer of urine into urinary bladder.
- Urinary bladder: It stores urine.
- Urethra: Urine is excreted by the opening of urethra.

Dialysis

Kidneys work in pairs but they are so efficient that even if one is damaged one can lead a healthy life. In case both the kidneys are damaged, a person can survive with the help of a) regular dialysis or b) Kidney transplant.

Dialysis is a method for removing toxic substances from the blood with the help of a machine when the kidneys are unable to do so. The dialysis machine is also called an artificial kidney. Blood from an artery of the arm is led through the dialysis machine, where urea and excess salts are removed. The blood is then led back to the patient's body through a vein. In a kidney transplant, at least one of the diseased kidneys is replaced with a healthy kidney from a donor.

Excretion in Plants

The main products excreted by plants are

CO₂ and O₂: CO₂ is formed as a result of respiration. O₂ is formed as a result of photosynthesis.

Excess water: It is excreted out of stomata and the process is called transpiration. This water gets evaporated from the surface of a leaves.

Excessive salts: If there is a high level of salts present in water or in the soil, these usually get deposited in plants as crystals.

Gums, resins and latex: Many older plants get rid of their toxic wastes in the form gum, resins and latex. In fact, we use these secretions to manufacture paints, varnishes, rubber and adhesives.