

## SCIENCE : Life Processes

### 17. How is food transported in plants?

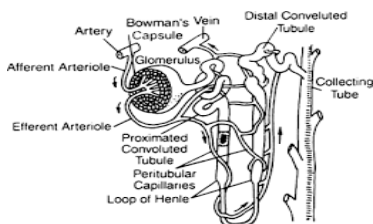
**Ans:** Food is transported in plants by a special organ called the phloem. Phloem transports food materials from leaves to different parts of a plant. Transportation of food in phloem is achieved by the expenditure of energy from ATP. This increases osmotic pressure in the tissue, causing water to move. This pressure moves material in the Phloem to the tissues with less pressure. This helps in the transportation of food materials as per the needs. Example, Sucrose

### 18. Describe the structure and functioning of nephrons.

**Ans:** Nephrons are the filtration units of the kidney, which are large in numbers. Some substances in the initial filtrate, such as glucose, amino acids, salts and a major amount of water, are selectively re-absorbed as the urine flows along the tube.

#### The main components of Nephrons are

- Glomerulus
- Bowman's Capsule
- Long Renal Tube
- Structure of Nephron



#### Functioning of Nephron

\*The blood enters the kidney through the renal artery, which branches into many capillaries associated with the glomerulus.

\*The water and solute are transferred to the nephron at Bowman's capsule.

\*In the proximal tubule, substances such as amino acids, glucose, and salts are selectively reabsorbed, and unwanted molecules are added to the urine.

\*The filtrate then moves down into the loop of Henle, where more water is absorbed. From here, the filtrate moves upwards into the distal tubule and finally to the collecting duct. The collecting duct collects urine from many nephrons.

\*The urine formed in each kidney enters a long tube called the ureter. From the ureter, it gets transported to the urinary bladder and then into the urethra.

### 19. What are the methods used by plants to get rid of excretory products?

**Ans:** Plants can get rid of excess water by transpiration. For other wastes, plants use the fact that many of their tissues consist of dead cells and that they can even lose some parts, such as leaves. Many plant waste products are stored in cellular vacuoles. Waste products may be stored in leaves that fall off.

Other waste products are stored as resins and gums,

especially in old xylem. Plants also excrete some waste substances into the soil around them.

### 20. How is the amount of urine produced regulated?

**Ans:** The amount of urine produced depends on the amount of excess water and dissolved waste present in the body. Other factors may be the environment and the ADH hormone, which regulates the production of urine.

### 21. The kidneys in human beings are a part of the system for

- (a) nutrition
- (b) respiration
- (c) excretion
- (d) transportation

**Ans:** C

### 22. The xylem in plants is responsible for

- (a) transport of water
- (b) transport of food
- (c) transport of amino acids
- (d) transport of oxygen

**Ans:** a

### 23. The autotrophic mode of nutrition requires

- (a) carbon dioxide and water
- (b) chlorophyll
- (c) sunlight
- (d) all of the above

**Ans:** d

### 24. The breakdown of pyruvate to give carbon dioxide, water, and energy takes place in

- (a) cytoplasm.
- (b) mitochondria
- (c) chloroplast
- (d) nucleus

**Ans:** b

### 25. How are fats digested in our bodies? Where does this process take place?

**Ans:** The small intestine is the place for the complete digestion of carbohydrates, fats and proteins. It receives the secretions of the liver and pancreas for this purpose.

The food coming from the stomach is usually acidic in nature, and it has to be made alkaline so that pancreatic enzymes can act on it. Bile juice produced in the liver accomplishes this process.

Fats are usually present in the intestine in the form of larger globules, which makes it difficult for enzymes to act on them. The bile salts help in breaking down larger globules into smaller globules. The pancreas helps in secreting pancreatic juice, which contains enzymes like trypsin for digesting proteins and lipase for breaking down emulsified fats.

The walls of the small intestine contain glands, which secrete intestinal juice. The enzymes present in it finally convert the proteins to amino acids, complex carbohydrates into glucose and finally, fats into fatty acids and glycerol.

### 26. What is the role of saliva in the digestion of food?

**Ans:** The food we intake is complex in nature; if it is to be absorbed from the alimentary canal, then it has to be broken into smaller molecules. This process is mainly done with the help of biological catalysts called enzymes. The saliva contains an enzyme called salivary amylase that breaks down starch, which is a complex molecule to give sugar. The food is mixed thoroughly with saliva and moved around the mouth while chewing the muscular tongue. Hence, saliva plays a pivotal role in the digestion and absorption of food.