

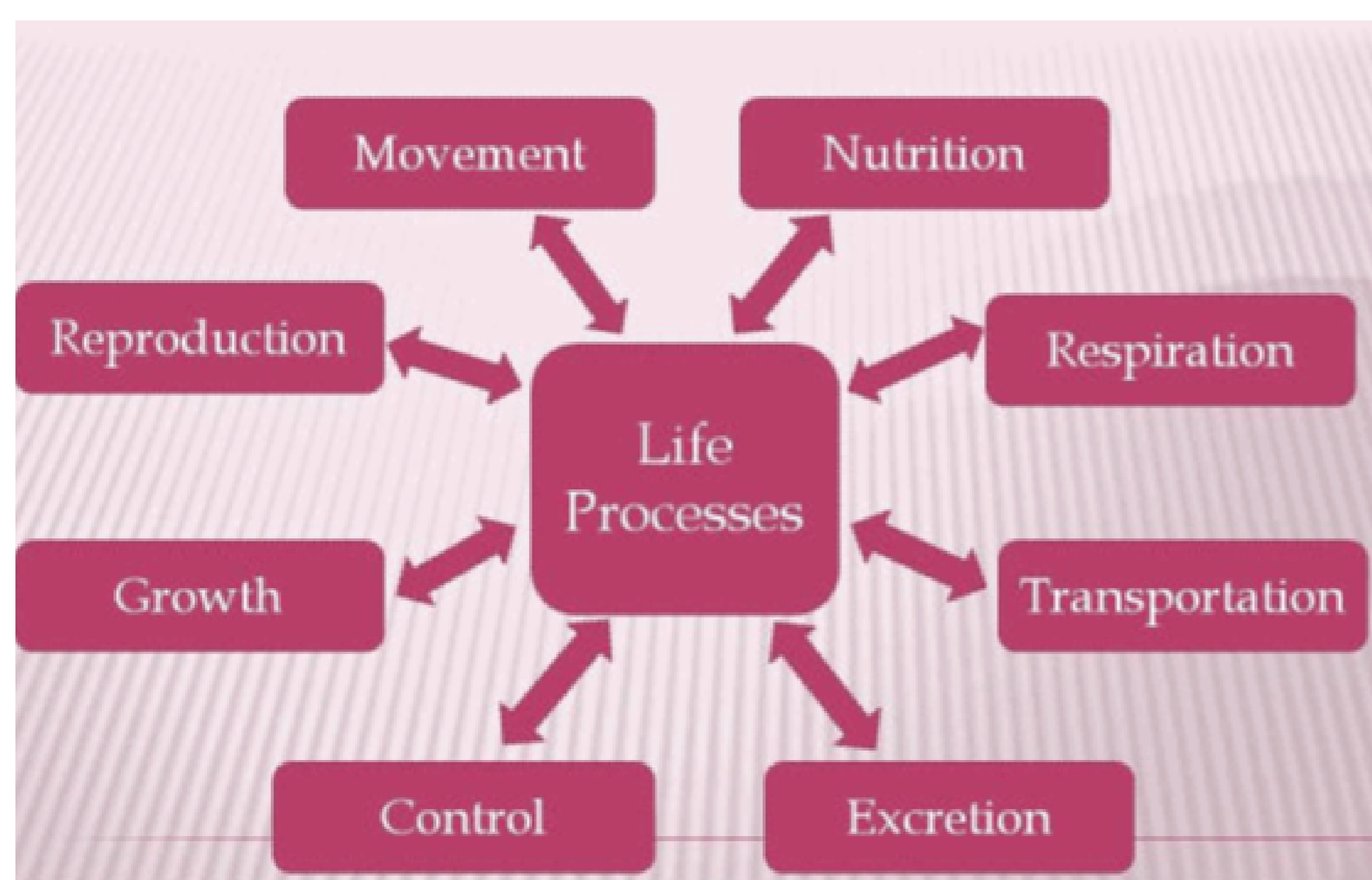
Case study based questions

10th Science

Life Processes

Passage - 1

5 Marks



Nutrition, respiration, circulation, excretion are examples of essential life processes. In unicellular organisms, all these processes are carried out by that single cell. In multicellular organisms, well-developed systems are present to carry out the processes. These processes help us classify that whether the organism is living or not.

Q 1. Nutrition is important because

- (1) It provides nourishment
- (2) It keeps us alive
- (3) Both A and B
- (4) It provides genetic information

Q 2. Respiration is

- (1) Catabolic process that uses carbon dioxide, produces oxygen and converts released energy into ATP
- (2) Anabolic process that uses oxygen and carbon dioxide to form ATP

(3) Anabolic process that uses oxygen, produces carbon dioxide and converts released energy into ATP

(4) Catabolic process that uses oxygen, produces carbon dioxide and converts released energy into ATP

Q 3. Transportation is helpful to plants in

- (1) Cooling
- (2) Loss of excess nutrients
- (3) Upward conduction/ascent of sap
- (4) Loss of excess water

Q 4. Excretion is removal of

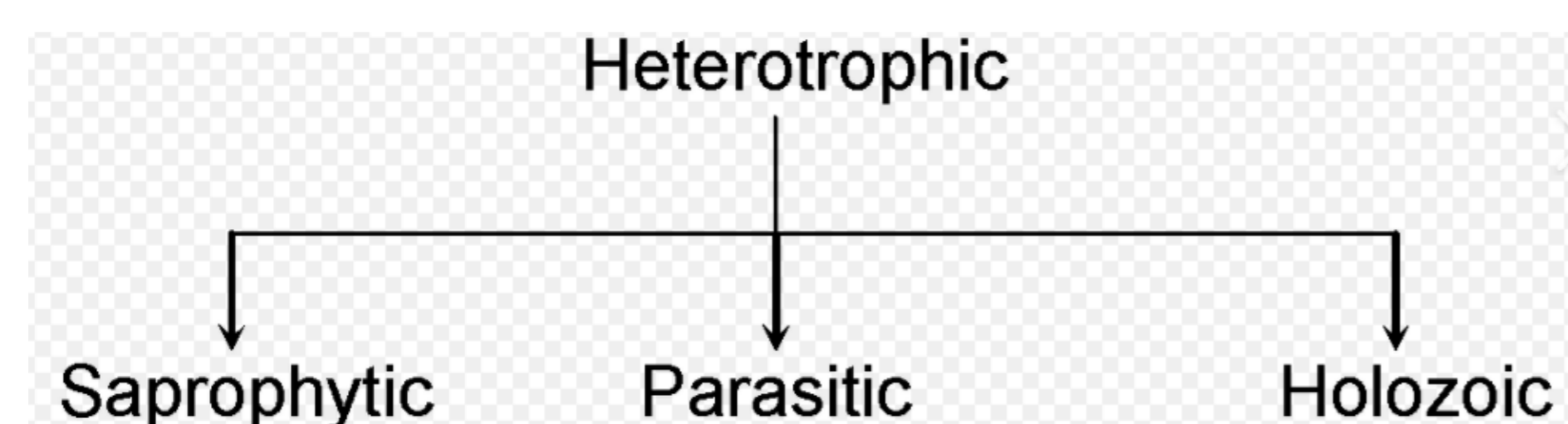
- (1) Carbon dioxide
- (2) Harmful and useless ingredients
- (3) Extra water
- (4) Metabolic waste products

Q 5. In humans, life processes are controlled and regulated by

- (1) Reproductive and endocrine systems
- (2) Respiratory and nervous systems
- (3) Endocrine and digestive systems
- (4) Nervous and endocrine systems

Passage - 2

5 Marks



During a class of nutrition, the students were taught about the heterotrophic mode of nutrition. Heterotrophic nutrition is the mode of nutrition where the organism is unable to prepare its food and hence, depends upon plants or other organisms for nutrition. Heterotrophic nutrition can be one of three types – holozoic, saprophytic or parasitic.

Q 1. The mode of nutrition in which one organism obtains nutrition from other organisms is known as

- (1) Symbiosis
- (2) Autotrophic nutrition
- (3) Saprotrophic nutrition
- (4) Heterotrophic nutrition

Q 2. Heterotrophic nutrition is

- (1) Oxidation of glucose
- (2) Breakdown of glucose into energy
- (3) Utilisation of plants obtained
- (4) All of the above

Q 3. Which of the following is an example of holozoic nutrition?

- (1) Humans
- (2) Fungi
- (3) Bacteria
- (4) Virus

Q 4. The mode of nutrition in fungi is

- (1) Saprotrophic or parasitic
 - (2) Only parasitic
-

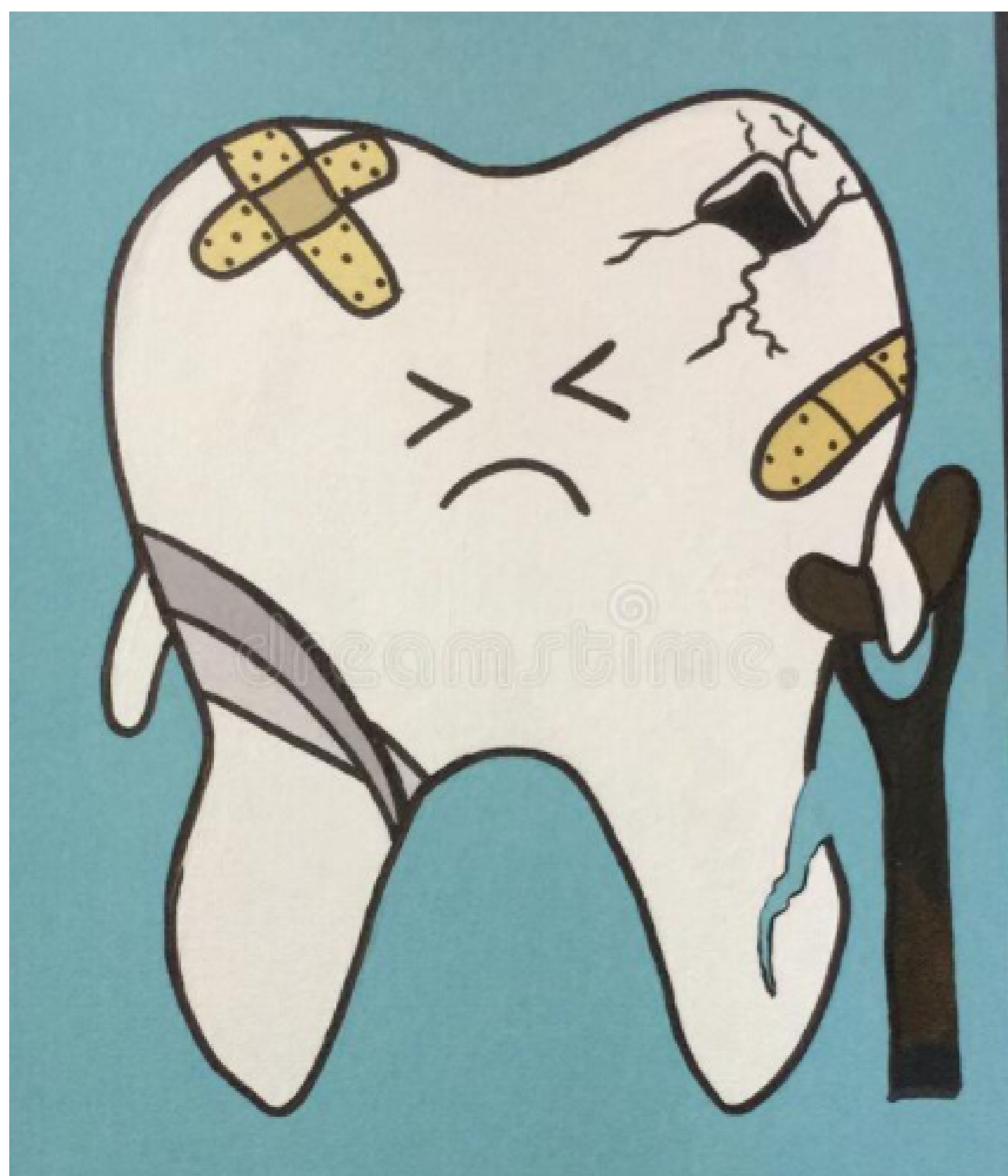
- (3) Only saprotrophic
- (4) None of the above

Q 5. Which of the following is an example of saprotrophic nutrition?

- (1) Dodder
- (2) Mushroom
- (3) Nepenthes
- (4) Venus fly trap

Passage - 3

5 Marks



Brushing required by our teeth on a regular basis. If the teeth are not regular, they become covered with a sticky yellowish layer of food particles and bacteria. Since the layer covers the teeth, an alkaline liquid is secreted by the glands of our mouth cannot reach the teeth surface to neutralise the acid formed by the action of bacteria which hence results in tooth decay.

Q 1. The yellowish layer layer formed over teeth is called dental plaque.

- (1) TRUE
- (2) FALSE

Q 2. The alkaline liquid is secreted by

- (1) Adrenal gland
- (2) Salivary gland
- (3) Thyroid gland
- (4) Pituitary glands

Q 3. Brushing done daily can be way to get rid of dental plaque.

- (1) TRUE
- (2) FALSE

Q 4. What is tooth decay?

- (1) Acids released by bacteria damages the teeth
- (2) Acids release by bacteria produces the teeth
- (3) Acids released by gums damages the teeth
- (4) Acids released by the gums hold the teeth

Q 5. The major reason for tooth decay is

- (1) Chocolates
 - (2) Sweets
 - (3) Cold drinks
 - (4) All of the above
-

Passage - 4

5 Marks



There are four organisms A, B, C and D. The organism A eats only the flesh of other animals as food. The organism B can eat grains, fruits and vegetables as well as meat and fish. The organism C can make the food itself from simple inorganic substances present in the environment by utilising sunlight energy. On the other hand, organism D eats only plants and their products as food.

Q 1. Which organism is an autotroph?

- (1) A
- (2) C
- (3) B
- (4) D

Q 2. Which organism is a heterotroph?

- (1) A
- (2) B
- (3) D
- (4) All of the above

Q 3. Which organism can be a producer?

- (1) A
- (2) B
- (3) C
- (4) D

Q 4. Which organism can be a consumer?

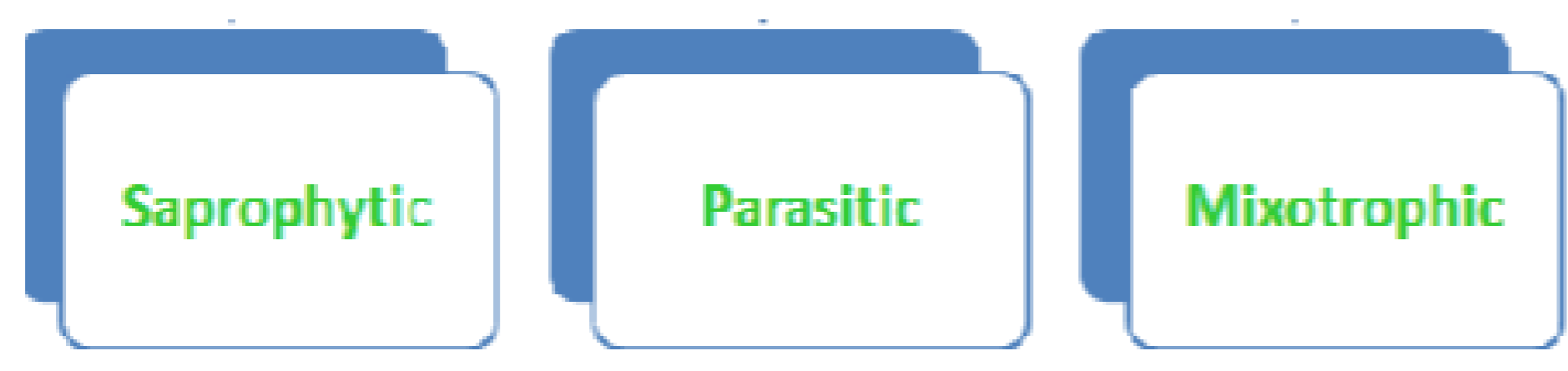
- (1) A
- (2) B
- (3) D
- (4) All of the above

Q 5. Which organism can be a carnivore?

- (1) A
- (2) B
- (3) C
- (4) None of the above

Passage - 5

5 Marks



The organisms A, B and C can obtain their food in three different ways. Organism A derives its food from the body of another living organism which is called its D, without killing it. The organism B takes in the solid food by the process of ingestion, digests a part of this food and throws out undigested food in the process called egestion. The organism C obtains food its food from dead and decaying plants.

Q 1. What is the mode of nutrition of A?

- (1) Parasitic
- (2) Holozoic
- (3) Saprotrophic
- (4) None of these

Q 2. What is the mode of nutrition of B?

- (1) Parasitic
- (2) Holozoic
- (3) Saprotrophic
- (4) None of these

Q 3. What is the mode of nutrition of C?

- (1) Parasitic
- (2) Holozoic
- (3) Saprotrophic
- (4) None of these

Q 4. What is the general name of three modes of nutrition exhibited?

- (1) Autotrophic nutrition
- (2) Heterotrophic nutrition

Q 5. Give one example of A.

- (1) Tapeworm
 - (2) Man
 - (3) Cow
 - (4) Mushroom
-

Case study based questions

10th Science

Life Processes

Passage - 1

5 Marks



Energy is needed in our body. We also need materials from outside in order to grow, develop, etc in the body. This source of energy is the food we eat. So, the process of acquiring food that is needed for nourishment and sustenance of the organism is called nutrition. There are two main modes of nutrition: autotrophic and heterotrophic. Heterotrophic nutrition has subtypes as holozoic, saprophytic and parasitic nutrition. Autotrophs are the organisms use simple food material obtained from inorganic sources in the form of carbon dioxide and water. Refer this information to answer the questions below.

Q 1. Give examples of autotrophic organisms.

- (1) Green plants, Fungi
- (2) Bacteria, Green plants
- (3) Both option 1 and 2
- (4) Animal, Fungi

Q 2. Whose survival depends directly or indirectly on autotrophs ?

- (1) Heterotrophs
- (2) Enzymes
- (3) Food material
- (4) Water

Q 3. What is used to reduce carbon dioxide into carbohydrates, in the process of photosynthesis ?

- (1) Oxygen
- (2) Hydrogen
- (3) Water
- (4) Sunlight

Q 4. Give examples of heterotrophic organisms.

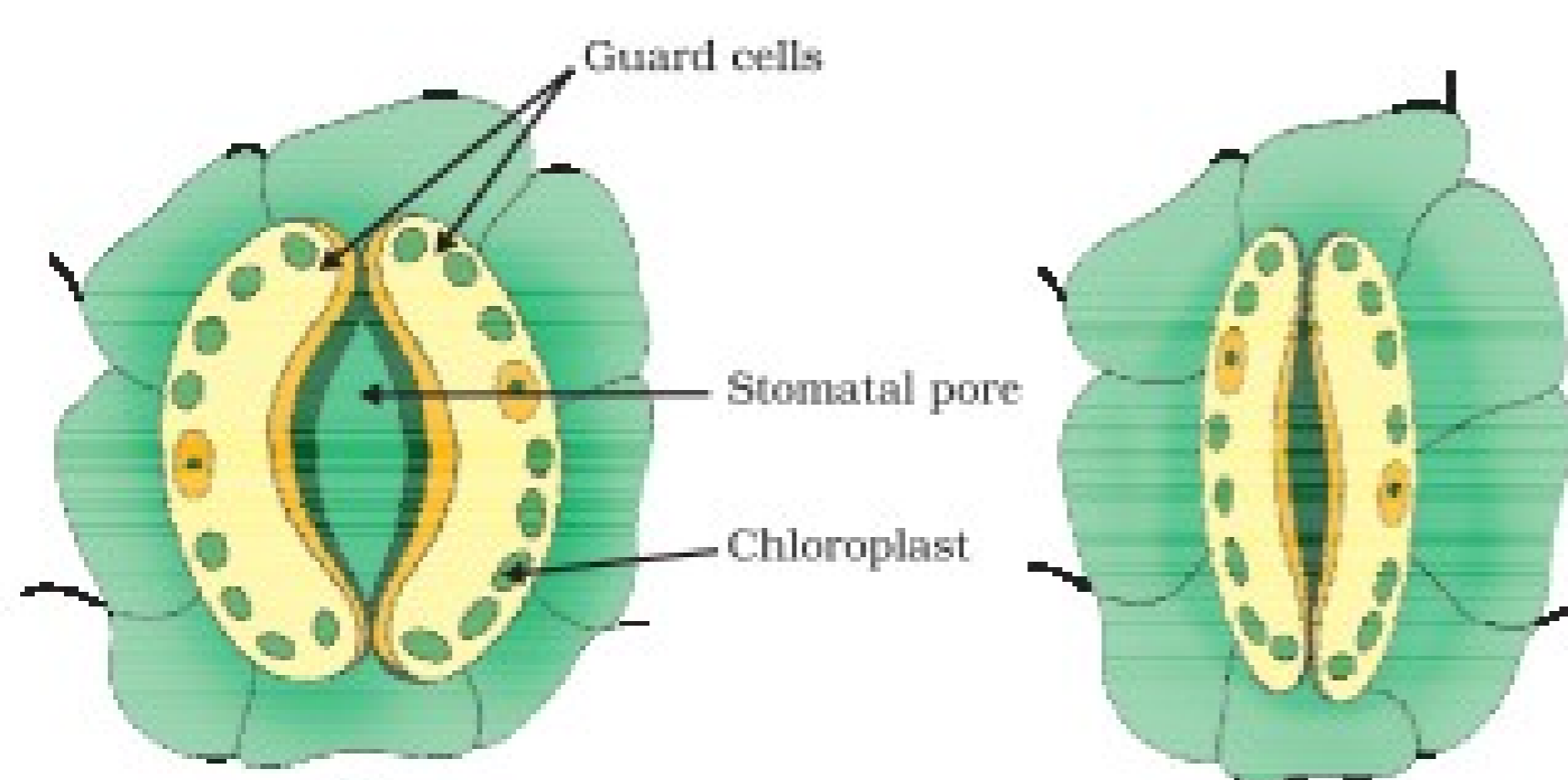
- (1) Green plants, Fungi
- (2) Bacteria, Green plants
- (3) Both option 1 and 2
- (4) Animal, Fungi

Q 5. What do organisms use to achieve the upkeep and growth of the body ?

- (1) Bio catalysts
- (2) Enzymes
- (3) Both option 1 and 2
- (4) Complex substances

Passage - 2

5 Marks



The tiny pores present on the surface of the leaves are called as 'X'. Large amounts of water can also be lost through the 'X', hence the plant closes these pores when it does not need carbon dioxide for the process 'Y'. The opening

and closing of the pore is a function of the 'Z'. When water flows into them, 'Z' gets swelled.

Q 1. Name the unknown X.

- (1) Stomata
- (2) Vacuole
- (3) Holes
- (4) Both option 1 and 2

Q 2. Name the unknown Z.

- (1) Guard Cells
- (2) Chloroplast
- (3) Vacuole
- (4) Nucleus

Q 3. Name the unknown Y.

- (1) Respiration
- (2) Photosynthesis
- (3) Phagocytosis
- (4) Chloroplast

Q 4. What happens when water flows into the pores ?

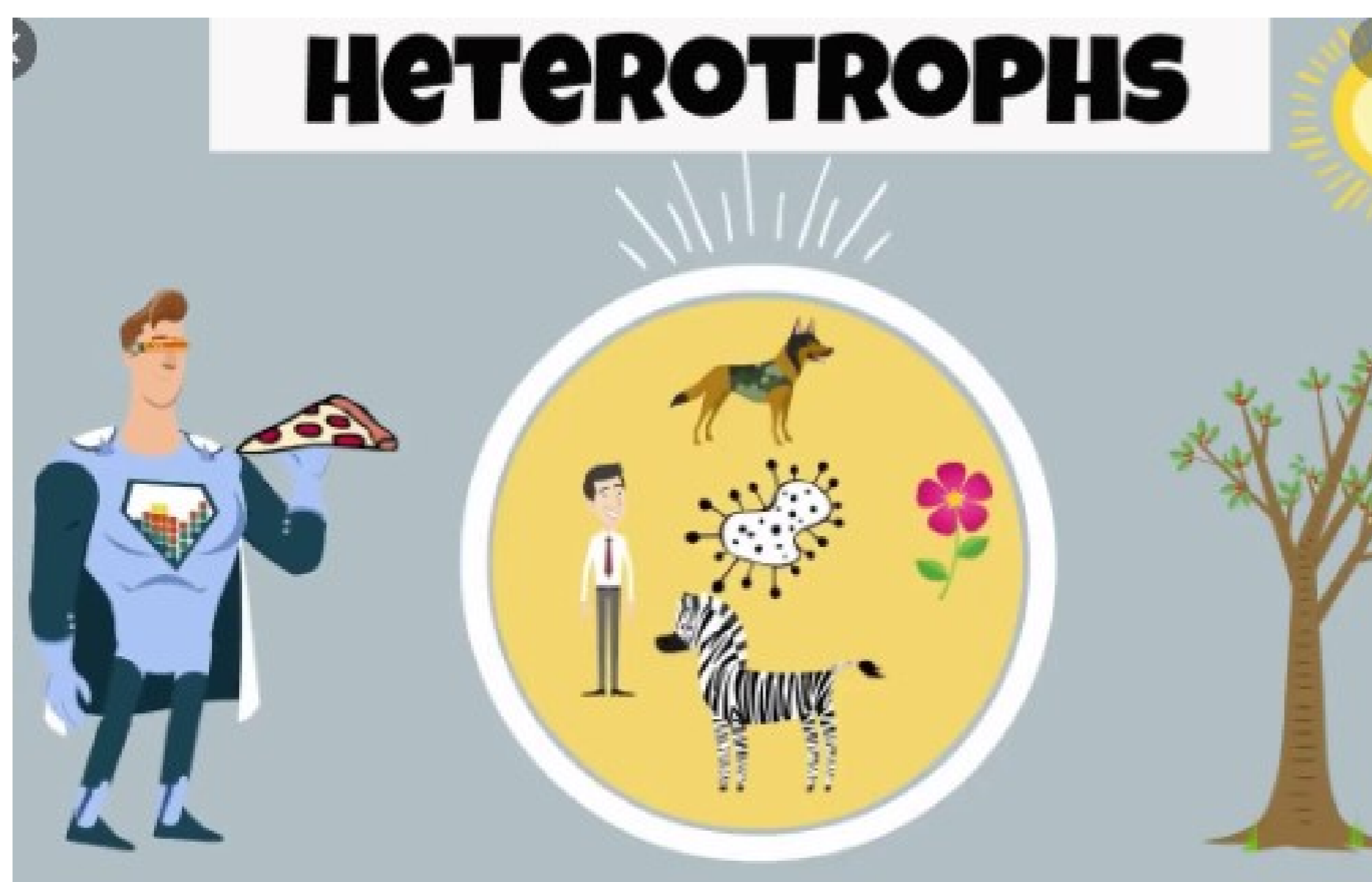
- (1) Guard Cells gets swelled
 - (2) Stomatal pores opens
 - (3) Stomatal pores closes if the guard cells shrink
 - (4) All the options
-

Q 5. Where is 'X' mostly found ?

- (1) On the under roots of the plants
- (2) On the underside of the leaf
- (3) On the lower edges of the branches
- (4) None

Passage - 3

5 Marks



Organisms 'Q' break-down the food material outside the body and then absorb it whereas, organisms 'R' take in whole material and break it down inside their bodies. Hence, we say that every organism is adapted to its environment. The form of nutrition differs in heterotrophs depending on the type and availability of food material as well as how it is obtained by the organism.

Q 1. Name the organism Q.

- (1) Cats, Humans and Wild animals
- (2) Bread moulds, yeast and mushrooms
- (3) Leeches and tape-worms
- (4) All the options

Q 2. Name the organism R.

- (1) Cats, Humans and Wild animals

- (2) Bread moulds, yeast and mushrooms
- (3) Leeches and tape-worms
- (4) All the options

Q 3. In how many ways of strategies, the food is taken and used by the organism ?

- (1) 2
- (2) Many
- (3) 1
- (4) 3

Q 4. What is the name of organisms that derive nutrition from plants or animals without killing them ?

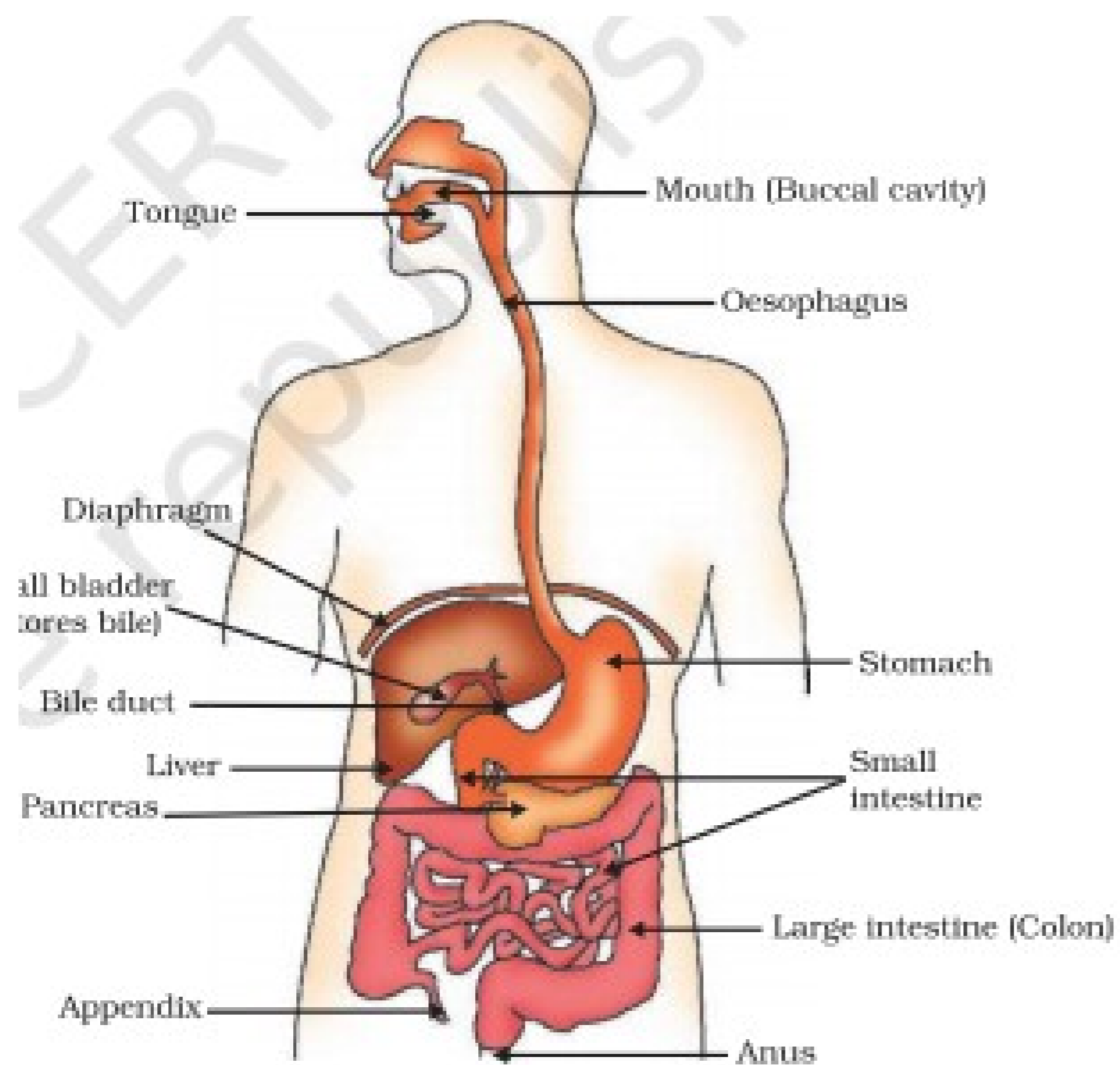
- (1) Endoparasitic
- (2) Saprophytic
- (3) Parasitic
- (4) None

Q 5. Which organisms feed on dead and decaying organic matter ?

- (1) Endoparasitic
- (2) Saprophytic
- (3) Parasitic
- (4) None

Passage - 4

5 Marks



Refer the image above for the passage. The food is taken to the X through the food-pipe, from the mouth. The X is a large organ which expands when food enters it. The muscular walls of the X help in mixing the food thoroughly with more digestive juices. The digestion in X is taken care of by the gastric glands present in the wall of the X.

Q 1. Identify X.

- (1) Stomach
- (2) Intestine
- (3) Oesophagus
- (4) None

Q 2. While digestion, what are released by the X ?

- (1) Hydrochloric acid
- (2) Pepsin
- (3) Mucus
- (4) All the options

Q 3. Name a different term for Food pipe.

- (1) Muscular walls
- (2) Oesophagus
- (3) Muscular pipes
- (4) Gastric glands

Q 4. What helps in mixing the food thoroughly with digestive juices ?

- (1) Muscular walls
- (2) Oesophagus
- (3) Muscular pipes
- (4) Gastric glands

Q 5. Which organ is present behind the mouth is also commonly referred to as the mouth ?

- (1) Oesophagus
- (2) Teeth
- (3) Buccal Cavity
- (4) Tongue

Passage - 5

5 Marks



The term A means the exchange of gases. The modes and ways to perform the term A differs in the animals, plants and humans. At 'B' level, term 'A' is referred as the burning of the food for generating the energy needed for other life processes. The energy released during 'B' level by the term 'A' is immediately used to synthesise a molecule called 'C'. This term 'C' is used to fuel some of the activities in the cell.

Q 1. Identify level 'B'.

- (1) Cellular
- (2) Tissue
- (3) Alveolar
- (4) All the options

Q 2. Identify the term 'A'.

- (1) Breathing
- (2) Respiration
- (3) Exhaling
- (4) All the options

Q 3. What can drive the endothermic reaction taking place in the cell ?

- (1) Glucose
- (2) Oxygen
- (3) Energy
- (4) None

Q 4. Name the term C.

- (1) ATP
- (2) Water
- (3) Carbon Dioxide
- (4) Glucose

Q 5. What are the products of the endothermic reaction shown above in the image ?

- (1) Energy
 - (2) Carbon Dioxide
 - (3) Water
-

(4) All the options