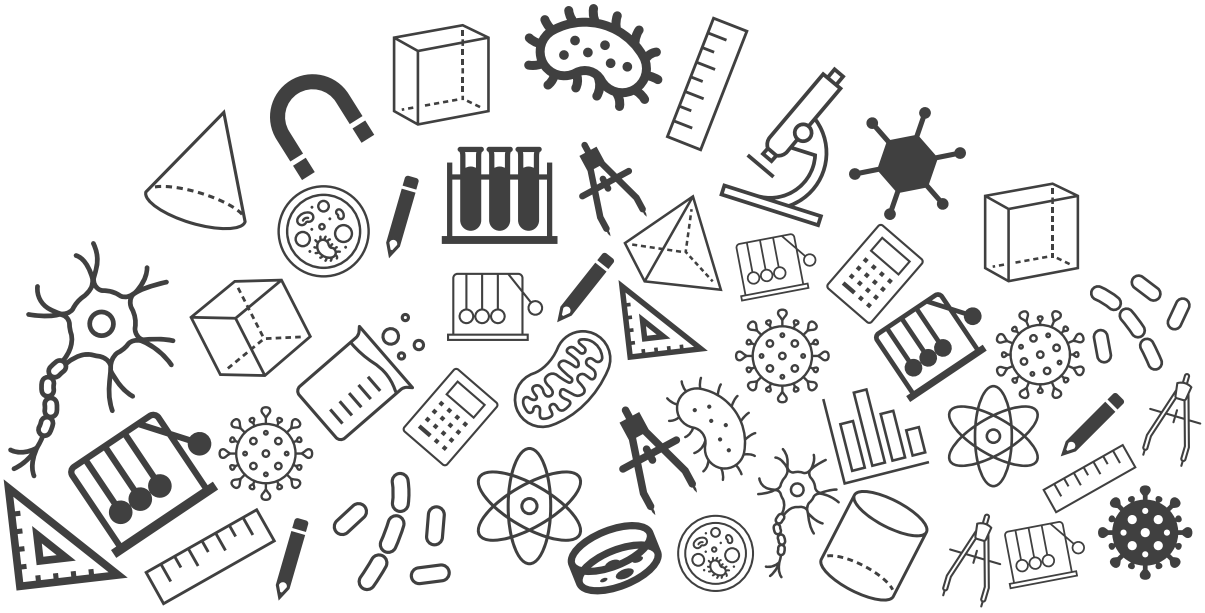
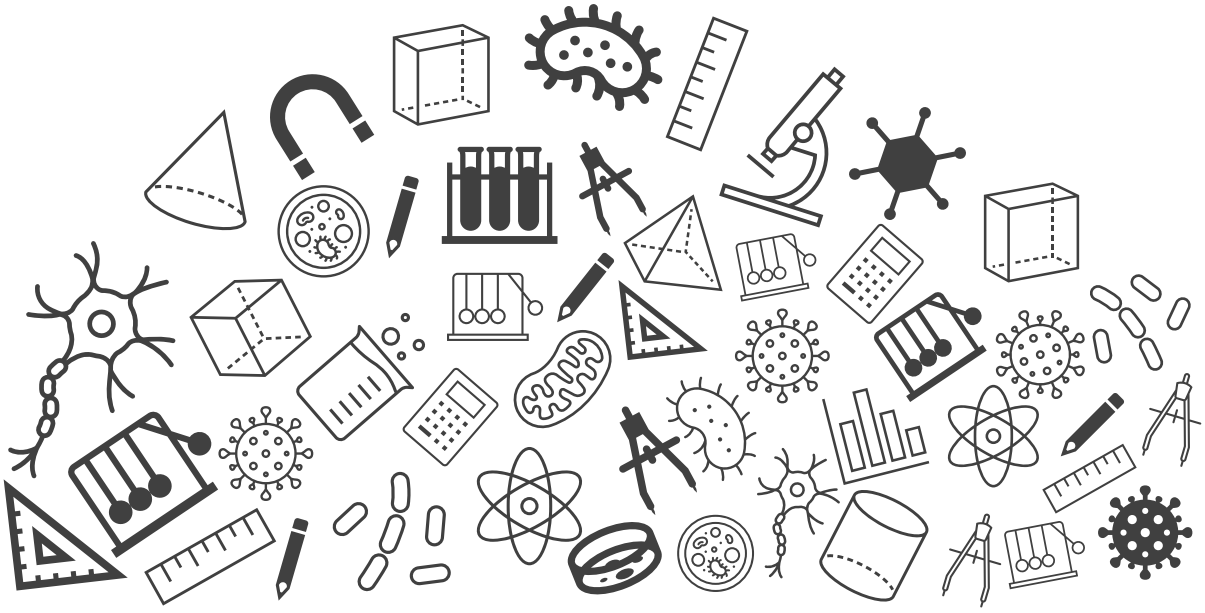
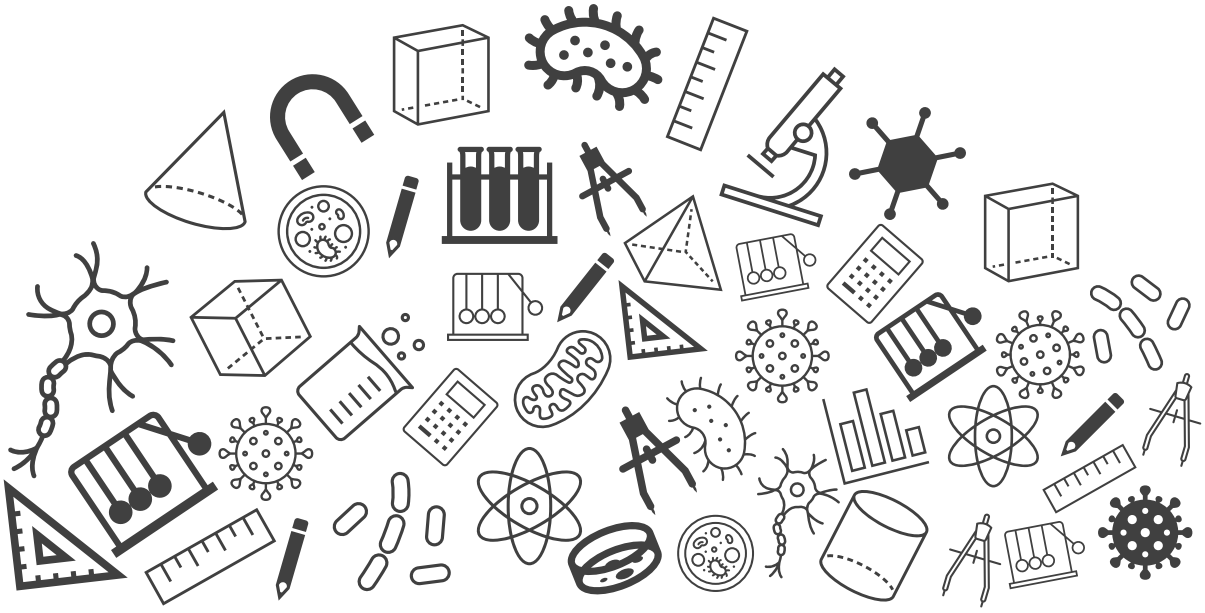
Grade 10: Science
Exam Important Questions



BIOLOGY



Life Processes



Life Processes

Topic : Exam Important Questions

1. Why does absorption of digested food occur mainly in the small intestine? [3 Marks]

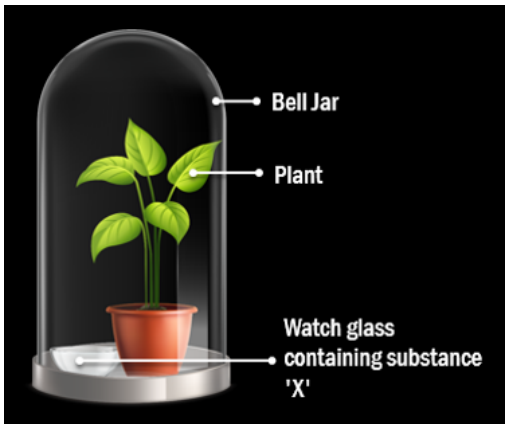
Maximum absorption occurs in the small intestine because

(a) Digestion is completed in the small intestine. [1 Mark]

(b) Inner lining of the small intestine is provided with villi which increases the surface area for absorption. [1 Mark]

(c) Wall of the intestine is richly supplied with blood vessels (which take the absorbed food to each and every cell of the body). [1 Mark]

2. The given figure is a demonstration of an experiment.



(a) What is the aim of this experiment?

(b) What is the substance 'X', kept in watch glass?

(c) What is the purpose of keeping substance 'X' in the jar?

(d) What happens to the leaf inside the bell jar when tested with iodine?

[5 Marks]

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Solution:
(a) This experiment aims to show that carbon dioxide is essential for photosynthesis. [1 Mark]
(b) The substance X is Potassium Hydroxide (KOH). [1 Mark]
(c) Potassium hydroxide is used to absorb carbon dioxide. [1 Mark]
(d) The leaf inside the bell jar does not give a blue-black colour when tested with an iodine solution. This is because there is no production of starch in the leaf as there is no carbon dioxide in the jar. [2 Marks]

3. Mention the major events during photosynthesis. [2 Marks]

The major events of photosynthesis are:

(a) Absorption of light energy by chlorophyll. [0.5 Marks]

(b) Conversion of light energy to chemical energy. [0.5 Marks]

(c) Splitting of H_2O into H_2, O_2 and e^- (electron). [0.5 Marks]

(d) Reduction of CO_2 to carbohydrates. [0.5 Marks]

4. Write the path of the air from the external environment to the lungs in the form of flow chart.
[2 Marks]

Solution:
Air from the external environment enters through the nostrils and reaches the alveoli of the lungs. [1 Mark]
The path of air is:
Nostril → Nasal passage → Pharynx → Larynx → Trachea → Bronchus → Bronchioles → Alveoli [1 Mark]

5. What are the advantage of having a four-chambered heart?
[2 Marks]

Solution:
In the four-chambered heart, the left half is completely separated from right half by septa. This prevents oxygenated and deoxygenated blood from mixing.
[1 Mark]

This separation allows a highly efficient supply of oxygenated blood to all parts of the body. Such a kind of four chambered heart is found in organisms which have high energy needs, such as birds and mammals.
[1 Mark]

6. Name one animal each having single circulation and double circulation of blood. [1 Mark]

The animal having single circulation of blood is fish.
[0.5 Marks]

The animal having double circulation of blood is human beings.

[0.5 Marks]

7. Name the main nitrogenous waste in the human blood. How is it removed from the blood? [2 Marks]

• Urea is the main nitrogenous waste in human blood. [1 Mark]

• The kidneys filter the blood and remove wastes like the urea, unwanted salts, and excess water out of the body in the form of a yellow liquid called urine. [1 Mark]

8. What forms the transport system in highly organised plants? [3 Marks]

In highly organised plants, there are two different types of conducting tissues known as xylem and phloem. Also known as vascular bundles, these permanent complex tissues are made up of both living cells and non-living cells. They play a central role in the plant's transport system. [1 Mark]

Xylem conducts water and minerals obtained from the soil (via roots) to different parts of the plant body. Their movement is unidirectional. [1 Mark]

Phloem transports food materials from the leaves to different parts of the plant body. Their movement is bidirectional. They translocate food to various parts of the plant. [1 Mark]

9. Why is it necessary to excrete waste products? [1 Mark]

Waste products are formed during the functioning of our cells. These waste products are toxic and hence need to be removed from our body. Excretion is the process of removal of wastes produced in the cells of the living organisms. [1 Mark]

10. Compare the functioning of alveoli in the lungs and nephrons in the kidneys with respect to their structure and functioning. [2 Marks]

1. Alveoli in the lungs and nephrons in the kidney are the smallest structural units of these organs. [1 Mark]
2. Alveoli provide the maximum surface area for the exchange of gases in the lungs and nephrons provide the maximum surface area for the diffusion of water, minerals, and waste in the kidneys. [1 Mark]