

Section A: Objective Type Questions (20 Marks)

Biology (10 Marks)

1. Multiple Choice Questions (MCQs) [1 mark each]

(i) Which of the following is a characteristic feature of living organisms?

- a) Growth
- b) Reproduction
- c) Metabolism
- d) All of the above

(ii) What is the main function of the mitochondria?

- a) Protein synthesis
- b) Cellular respiration
- c) Photosynthesis
- d) Digestion

(iii) Which of the following tissue is responsible for the transport of water

in plants?

a) Phloem

b) Xylem

c) Epidermis

d) Cambium

2. Fill in the Blanks [1 mark each]

(i) The process by which plants prepare food is called

(ii) The powerhouse of the cell is known as the

(iii) The process of taking in oxygen and releasing carbon dioxide is called

Physics (10 Marks)

1. Multiple Choice Questions (MCQs) [1 mark each]

(i) The unit of force is:

a)

Newton

b) Joule

c) Pascal

d) Watt

• (ii) According to Newton's first law of motion, an object remains in its state of rest or uniform motion unless acted upon by a:

a) Balanced force

b) Unbalanced force c) Gravitational force

d) Frictional force

(iii) The force acting on a object moving in a circular path is called:

a) Centripetal force

b) Centrifugal force c) Gravitational force

d) Frictional

force

2. Match the Following [1 mark each] Match the following physical quantities with their SI units:

• (i) Work a) kg m/s

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• (ii) Power

b) Joule

(iii) Momentum c) Watt

Section B: Short Answer Questions (30 Marks)

Biology (15 Marks)

1. Define the term "cell" and explain its types. [3 marks]

2. Differentiate between plant and animal cells with at least two points. [3 marks]

3. Explain the process of photosynthesis with a balanced chemical equation.

[3 marks]

4. What is respiration? Explain aerobic and anaerobic respiration. [3 marks]

5. Describe the structure and function of the heart. [3 marks]

Physics (15 Marks)

1. State and explain Newton's second law of motion with an example. [3 marks]

2. Derive the formula for kinetic energy and explain each term. [3 marks]

3. Explain the concept of inertia and provide two examples from daily life. [3 marks]

4. Define and explain the principle of conservation of momentum with an example. [3 marks]

5. What are balanced and unbalanced forces? Give one example for each. [3 marks]

Section C: Long Answer Questions (30

Marks)

Biology (15 Marks)

1. Explain the structure of the human digestive system, mentioning the role of each part. [5 marks]
2. How do plants transport water and nutrients? Explain the process of transpiration and its significance. [5 marks]
3. Describe the process of cellular respiration in detail. [5 marks]

Physics (15 Marks)

1. Discuss Newton's three laws of motion with examples. [5 marks]
2. A car of mass 1000 kg is moving with a velocity of 20 m/s. Calculate its kinetic energy. Also, explain the significance of kinetic energy in real-life situations. [5 marks]
3. Explain the concept of work, energy, and power, and give the mathematical relationships between them with appropriate SI units. [5 marks]