

BIOLOGY

CBSE Class XI | Vacation Assignment | Set 1

Time Allowed: 3 Hours	Maximum Marks: 70
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General Instructions

1. Attempt all questions. Draw clear, labelled diagrams where appropriate.
2. Use correct biological terminology.
3. Marks are shown against each question.

Section A — Objective / Very Short Answer (16 marks)

Q1–Q8. Choose the correct answer. ($8 \times 1 = 8$)

1. The basic unit of classification is: (a) genus (b) species (c) family (d) order
2. The cell organelle mainly responsible for ATP production is: (a) Golgi body (b) mitochondrion (c) lysosome (d) ribosome
3. The plant tissue that transports water is: (a) phloem (b) xylem (c) epidermis (d) collenchyma
4. Enzymes are generally: (a) carbohydrates (b) lipids (c) proteins (d) nucleic acids
5. The site of light-dependent reactions of photosynthesis is: (a) stroma (b) thylakoid membranes (c) cytoplasm (d) nucleus
6. The functional unit of the kidney is: (a) neuron (b) nephron (c) alveolus (d) villus
7. Crossing over occurs during: (a) prophase I of meiosis (b) mitotic metaphase (c) cytokinesis (d) interphase
8. The hormone that lowers blood glucose is: (a) glucagon (b) insulin (c) adrenaline (d) thyroxine

Q9–Q12. Answer in one or two sentences. ($4 \times 2 = 8$)

9. Define binomial nomenclature and name its two components.
10. State two differences between prokaryotic and eukaryotic cells.
11. What is osmosis?
12. Define transpiration and state one function.

Section B — Short Answer (18 marks)

- Q13. Explain the taxonomic hierarchy from species to kingdom. (3)
- Q14. Describe the fluid mosaic model of the plasma membrane. (3)
- Q15. Differentiate between mitosis and meiosis on any three points. (3)
- Q16. Explain the role of enzymes and describe two factors affecting enzyme activity. (3)
- Q17. Describe the pathway of water movement from soil to the leaves of a plant. (3)
- Q18. Explain the role of stomata in photosynthesis and transpiration. (3)

Section C — Long Answer (24 marks)

- Q19. Describe the structure of a typical plant cell with a labelled diagram. (4)
- Q20. Explain the major events of prophase I of meiosis and state the significance of crossing over. (4)
- Q21. Describe glycolysis and state its location and net products. (4)
- Q22. Explain the mechanism of breathing in humans, including inspiration and expiration. (4)
- Q23. Describe the structure of a nephron and explain how urine is formed. (4)

Q24. Explain the light and dark reactions of photosynthesis, identifying their locations and major products. (4)

Section D — Application / Case-based (12 marks)

Q25. A plant kept in bright light is watered regularly but wilts during a hot afternoon. (a) Give two possible physiological reasons. (2) (b) Explain how stomata respond to water stress. (2)

Q26. A student observes onion root-tip cells under a microscope. (a) Why is this tissue suitable for studying mitosis? (2) (b) Name two visible stages and describe one identifying feature of each. (2)

Q27. After a carbohydrate-rich meal, blood glucose rises and later returns towards normal. (a) Which hormone is released to lower blood glucose? (1) (b) Explain its effect on target cells and the role of negative feedback. (3)