



Attempt questions first; check the separate key afterward. Use labelled diagrams where asked. Give scientific reasons; answer key covers closed questions.

A. Very short answers - 1 mark each

1. Define growth in biological terms.
2. Name the growth pattern typical of most plant organs.
3. Which growth model gives a sigmoid curve?
4. Name the hormone most associated with apical dominance.
5. Name the gaseous plant hormone.
6. Name the growth inhibitor associated with stomatal closure under water stress.
7. Name the hormone commonly associated with bolting.
8. Name hormones promoting cell division.

B. Short answers / practice - 2 marks each

9. Explain why plant growth is described as open.
10. Compare arithmetic and geometric growth.
11. Distinguish absolute and relative growth rates.
12. A root grows from 4 to 10 cm in three days. Find absolute growth rate.
13. Compare meristematic, elongation and maturation zones.
14. State essential environmental conditions for plant growth.
15. Differentiate differentiation, dedifferentiation and redifferentiation.
16. Give an example of dedifferentiation in plants.
17. Explain developmental plasticity with heterophylly.
18. Distinguish growth from development.
19. Describe auxin effects on cell elongation and rooting.
20. Explain how removal of a shoot tip affects lateral buds.

C. Application / reasoning - 3 marks each

21. Name a synthetic auxin used as a selective weedicide.
22. Explain auxin-induced parthenocarpy.
23. State three agricultural uses of gibberellins.
24. Explain the role of gibberellins in seed germination.
25. How do cytokinins influence senescence and nutrient mobilisation?
26. Describe ethylene effects on fruit ripening and abscission.
27. Explain ABA's role in seed dormancy and stress response.
28. Can the same hormone have different effects in different tissues?
29. A leaf grows from 5 to 10 cm²; another from 50 to 55 cm². Compare absolute gains.
30. For those leaves, compare percentage increases.
31. Why must hormone interactions be considered rather than isolated actions?

D. Extended practice - 5 marks each

32. Compare five major plant growth regulators with functions and applications.
33. Draw arithmetic and sigmoid growth curves and explain their phases.
34. Explain differentiation and developmental plasticity using suitable examples.
35. Design a controlled test of an auxin's effect on rooting, including variables and observations.

ANSWER KEY - Numerical / closed questions

- 2) Indeterminate growth due to meristems. 3) Logistic/limited geometric growth. 4) Auxin. 5) Ethylene. 6) ABA. 7) Gibberellin. 8) Cytokinins. 12) 2 cm/day. 21) 2, 4-D. 28) Yes. 29) Both gain 5 cm². 30) 100% and 10%, respectively.