

Plant Growth and Development — CBSE Pattern Test 1

Class 11 Biology · 90 minutes · 40 marks · Sections A–D with answer key · Narayan Gurukul Academy

Test 1 — CBSE Pattern (90 minutes, 40 marks)

Class 11 Biology · Plant Growth and Development · Narayan Gurukul Academy (ClassApna)

General Instructions: (1) This paper has four sections — Section A (1×10), Section B (2×4), Section C (3×4) and Section D (5×2) — total 40 marks. Time allowed: 90 minutes.
(2) All questions are compulsory. No overall choice is given; internal choice, where allowed, is clearly marked.
(3) For MCQ questions choose the single correct option; for VSA answers write a single line.
(4) Take $g = 10 \text{ m/s}^2$. All symbols carry their usual meaning. Use of a calculator is not permitted.

Section A — MCQ & VSA ($10 \times 1 = 10$ marks)

- Plant growth is defined as
 - an irreversible permanent increase in size
 - a reversible change
 - a temporary swelling
 - movement
- The phase of growth with maximum rate is
 - log phase
 - lag phase
 - stationary phase
 - senescence
- When only one daughter cell continues to divide, growth is
 - arithmetic
 - geometric
 - exponential
 - logarithmic
- When both daughter cells divide, growth is
 - geometric
 - arithmetic
 - linear
 - constant
- The process by which cells become specialised is
 - differentiation
 - dedifferentiation
 - redifferentiation
 - senescence
- Auxin promotes
 - cell elongation
 - cell death
 - dormancy only
 - senescence only
- Cytokinin promotes
 - cell division

- (B) cell elongation only
 - (C) abscission
 - (D) dormancy only
8. Photoperiodism is the response of plants to
- (A) duration of light
 - (B) temperature
 - (C) water
 - (D) nutrients
9. Define growth in plants.
10. What is photoperiodism?

Section B — Short Answer I ($4 \times 2 = 8$ marks)

11. Name the three phases of growth.
12. What is a sigmoid growth curve?
13. What is dedifferentiation?
14. Name one growth inhibitor.

Section C — Short Answer II ($4 \times 3 = 12$ marks)

15. Distinguish between growth and development.
16. Distinguish between arithmetic and geometric growth.
17. Distinguish between growth promoters and growth inhibitors.
18. Distinguish between photoperiodism and vernalisation.

Section D — Long Answers ($2 \times 5 = 10$ marks)

19. (a) Describe the phases of growth in plants. (b) Explain arithmetic and geometric growth with graphs.
20. (a) Explain differentiation, dedifferentiation and redifferentiation with examples. (b) Describe the plant growth regulators and their functions.

Answer Key (Marking Scheme)

- Q1 — (A) an irreversible permanent increase in size. Q2 — (A) log phase. Q3 — (A) arithmetic. Q4 — (A) geometric. Q5 — (A) differentiation. Q6 — (A) cell elongation. Q7 — (A) cell division. Q8 — (A) duration of light.
- Q9 — Growth is an irreversible permanent increase in size or volume of a plant.
- Q10 — Photoperiodism is the response of plants to the relative length of day and night.
- Q11 — Lag, log and stationary phases.
- Q12 — The S-shaped curve of geometric growth on a linear scale.
- Q13 — Dedifferentiation is the regaining of the ability to divide by mature cells.
- Q14 — Absciscic acid (or ethylene).
- Q15 — Growth is an increase in size; development includes growth and differentiation.
- Q16 — Arithmetic: one daughter cell divides (linear); geometric: both divide (sigmoid).
- Q17 — Promoters (auxin, gibberellin, cytokinin) enhance growth; inhibitors (ABA, ethylene) retard it.
- Q18 — Photoperiodism is a response to light duration; vernalisation is a response to low temperature.

Q19 — (a) Lag (slow), log (rapid), stationary (slows). (b) Arithmetic gives a linear curve; geometric gives a sigmoid curve.

Q20 — (a) Differentiation (meristem → specialised), dedifferentiation (mature → dividing, e.g. cork cambium), redifferentiation (→ secondary xylem/phloem). (b) Auxin (elongation), gibberellin (stem elongation), cytokinin (cell division), ethylene (ripening), ABA (dormancy).