

Plant Growth and Development — CBSE Pattern Test 2

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

Test 2 — 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)

- The region of active growth in a plant is the
 - meristem
 - root cap
 - bark
 - pith
- A plot of arithmetic growth with time is
 - linear
 - sigmoid
 - exponential
 - parabolic
- A plot of geometric growth with time is
 - sigmoid
 - linear
 - constant
 - inverse
- The regaining of the ability to divide by mature cells is
 - dedifferentiation
 - differentiation
 - redifferentiation
 - growth
- Gibberellin promotes
 - stem elongation
 - fruit ripening
 - senescence
 - abscission
- Absciscic acid is mainly a
 - growth inhibitor
 - growth promoter
 - pigment
 - enzyme
- Plants requiring a long day for flowering are
 - long-day plants

- (B) short-day plants
 - (C) day-neutral plants
 - (D) xerophytes
8. Vernalisation is the promotion of flowering by
- (A) low temperature
 - (B) high temperature
 - (C) light
 - (D) water
9. What is arithmetic growth?
10. What is vernalisation?

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

11. Which growth gives a sigmoid curve?
12. Name two conditions necessary for plant growth.
13. What is redifferentiation?
14. Name one long-day plant.

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

15. Distinguish between differentiation and dedifferentiation.
16. State two functions of auxin.
17. Classify plants based on photoperiod.
18. How do light and temperature affect growth?

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

19. (a) Describe the sigmoid curve and its phases. (b) Explain the conditions necessary for plant growth.
20. (a) Explain photoperiodism with examples. (b) Describe vernalisation and its significance.

Answer Key (Marking Scheme)

- Q1 — (A) meristem. Q2 — (A) linear. Q3 — (A) sigmoid. Q4 — (A) dedifferentiation. Q5 — (A) stem elongation. Q6 — (A) growth inhibitor. Q7 — (A) long-day plants. Q8 — (A) low temperature.
- Q9 — Arithmetic growth is growth in which only one daughter cell continues to divide.
- Q10 — Vernalisation is the promotion of flowering by exposure to low temperature.
- Q11 — Geometric growth.
- Q12 — Water and oxygen (also nutrients and optimum temperature).
- Q13 — Redifferentiation is the maturation of dedifferentiated cells that again lose the ability to divide.
- Q14 — Wheat (or radish).
- Q15 — Differentiation: meristematic cells become specialised; dedifferentiation: mature cells regain the ability to divide.
- Q16 — Cell elongation and apical dominance (also rooting).
- Q17 — Long-day, short-day and day-neutral plants.
- Q18 — Light drives photosynthesis and photomorphogenesis; temperature sets the optimum for enzyme activity.

Q19 — (a) Lag, log and stationary phases, giving an S-shaped curve. (b) Water, oxygen, nutrients and optimum temperature.

Q20 — (a) Response to relative day/night length; long-day (wheat), short-day (soybean), day-neutral. (b) Low-temperature treatment promotes flowering; used in winter wheat cultivation.