

CLASS 11

BIOLOGY

EXTRA QUESTIONS

Class 11 Biology Chapter 13 Plant Growth and Development – Extra Questions with Answers

Extra practice questions for Class 11 Biology Chapter 13 (Plant Growth and Development), beyond the textbook. These Class 11 Biology Chapter 13 important questions are handy for last-minute exam practice.

Contents

- Very Short Answer Questions (1 mark)
- Short Answer Questions (2–3 marks)
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Extra practice questions for Class 11 Biology Chapter 13 (Plant Growth and Development), beyond the textbook. These Class 11 Biology Chapter 13 important questions are handy for last-minute exam practice.

Very Short Answer Questions (1 mark)

Q1. Which hormone is known as the “stress hormone”?

Ans: Absciscic acid (ABA).

Q2. Which is the only gaseous plant hormone?

Ans: Ethylene.

Q3. What type of growth is characteristic of plants?

Ans: Indeterminate (open) growth.

Q4. Which hormone promotes apical dominance?

Ans: Auxin.

Q5. What is vernalisation?

Ans: The promotion of flowering by exposure to a period of low temperature.

Short Answer Questions (2–3 marks)

Q6. Describe the three phases of the sigmoid growth curve.

Ans: Lag phase (slow, initial growth as the cell/organ adjusts), log phase (rapid, exponential growth), stationary phase (growth rate slows and plateaus as resources/space become limiting).

Q7. List the five major plant growth hormones and one function of each.

Ans: Auxin (cell elongation), gibberellin (stem elongation, germination), cytokinin (cell division), ethylene (fruit ripening), absciscic acid (dormancy/stress response).

Q8. What is apical dominance and which hormone is responsible for it?

Ans: The phenomenon where the growing apical (terminal) bud suppresses the growth of lateral (axillary) buds; caused by auxin produced at the apical bud.

Higher-Order Thinking / Application Questions

Q9. Explain why removing the apical bud (a common gardening technique called “pinching” or “topping”) causes a plant to become bushier, with more lateral branches, connecting this to the hormonal mechanism of apical dominance.

Ans: Apical dominance is the phenomenon by which the actively growing apical (terminal) bud of a plant produces high concentrations of the hormone auxin, which then moves downward through the stem and suppresses the growth and development of lateral (axillary) buds located further down the stem, ensuring the plant's energy and resources are primarily directed toward vertical growth of the main shoot. When a gardener removes (pinches off) the apical bud, the primary source of auxin suppressing lateral bud growth is eliminated. Without this constant inhibitory auxin signal from above, the previously dormant or suppressed lateral (axillary) buds are released from inhibition and begin to actively grow and develop into new lateral branches/shoots, since the plant's hormonal balance shifts to favour lateral bud activation (partly also involving relatively increased cytokinin influence, which promotes cell division and shoot growth from lateral buds). This is why pinching off the apical bud is a common horticultural technique to encourage a plant to grow bushier and more branched, rather than tall and single-stemmed.

Q10. Explain why gibberellins are commercially used to promote seedless grape production and increase the size of grape bunches, connecting this to their known physiological effects on stem/fruit elongation and cell division.

Ans: Gibberellins are well known to promote cell elongation and, in some contexts, cell division, particularly affecting stem internode elongation and, importantly, fruit development. In grape cultivation, gibberellin application (often as a spray) to grape clusters at specific developmental stages produces two commercially valuable effects: first, it promotes the elongation of the pedicels (the small stalks connecting individual grapes to the main bunch stem), which effectively spaces out the individual grapes more, reducing overcrowding and allowing better air circulation and light penetration, resulting in looser, larger, more visually appealing grape bunches that are also less prone to fungal disease due to better spacing. Second, in seedless grape varieties, gibberellin application to the developing fruit (which naturally lacks the auxin/gibberellin signal normally provided by developing seeds after fertilization) can substitute for this missing hormonal signal, stimulating the ovary wall (pericarp) to continue growing and enlarging into a full-sized fruit even without seed development, resulting in larger, seedless grapes than would otherwise develop naturally. Both effects — pedicel elongation for looser bunches and fruit enlargement in the absence of seeds — directly leverage gibberellin's known role in promoting cell elongation and substituting for endogenous hormonal signals normally provided by developing seeds, which is why it is widely and commercially used in table grape production.

Class 11 Biology Chapter 13 – Solutions and Notes

For complete step-by-step answers and a quick summary, check the [Class 11 Biology Chapter 13 Solutions](#) and [Class 11 Biology Chapter 13 Revision Notes](#).

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