

## Chapter- 15

# PLANT GROWTH AND DEVELOPMENT

### VERY SHORT ANSWER QUESTIONS (1 mark)

01. How do plants grow throughout their life?
02. How the genetic dwarfism is reversed by the treatment of gibberellins?
03. How does ethylene increases productivity in cucumber?
04. Name the two synthetic auxins used for inducing the rooting in woody plants.
05. What is the full form of IAA, NAA, IBA, ABA, 2, 4-D?
06. Name the hormone that is more often inhibitory, but also promotes certain functions.
07. Define vernalization.
08. What induces parthenocarpy in grapes?
09. Define growth and plasticity in the plant.
10. What is heterophylly? Define callus.

### SHORT ANSWER TYPE QUESTIONS (2 marks)

11. Why the name of kinetic has been changed to cytokinin? Give any two applications of cytokinin.
12. What is the difference between geometric growth and arithmetic growth?
13. What changes would the meristematic cell undergo to become xylem tracheids or vessel?
14. Why is abscisic acid also known as stress hormone?
15. What is bolting? What conditions can induce bolting naturally and how can it be induced artificially?
16. What was Darwin's conclusion with the expression on canary grass? Mention any two applications of hormone found in the canary grass experiment.
17. Define differentiation. Also, give details about how can you distinguish between differentiation and redifferentiation.

### SHORT ANSWER TYPE QUESTIONS (3 marks)

18. Diagrammatically explain the sequence of the process of development in plants.
19. It is often said that growth in the plant is measurable. Explain how.
20. (i) What is the meaning of balance (ii) Name the microorganism which yields gibberellins?

- (iii) Name the cytokinesis like substance isolated from core kernel and coconut milk.  
(iv) How gibberellins are different from auxins in their chemical nature?
21. (a) Mention the significance of seed dormancy. (b) What is seed dormancy?
  22. What will you do to prevent leaf fall and fruit drop in plants? Support your answer with reason.
  23. What are plant growth hormones? How do they differ from growth regulators?
  24. Explain photoperiodism.

**LONG ANSWER TYPE QUESTIONS (5 marks)**

25. What are the different phases of growth? Describe them in detail. How will you demonstrate the phases of growth in a seedling?
26. Why is plant growth considered indeterminate?
27. Describe arithmetic growth with a graph.

**HOTS/MODEL QUESTIONS:**

01. How the growth of plants is different than the growth of animals?
02. Why the concentration of auxin that promotes shoot growth inhibits root growth?
03. Is it possible to change a female plant into a male plant?
04. Why chrysanthemum flowers in winters and carnation in summers?
05. Define plasticity in plants.
06. Name the two synthetic auxins used for inducing the rooting in woody plants.
07. Why is the term long day plant a misnomer?
08. What is the growth curve and growth rate?
09. A student cultures a callus from the tobacco pith in a sterilized minimal nutritive medium but adds more cytokinin than auxins. What would develop first from the callus the shoot buds or the roots?
10. What is a short night plant? Give an example.
11. What part of the plant perceives light for flowering?
12. In some germinating seeds, enzymes mobilize nutrients in the cotyledons. Name the phytohormone that stimulates the production of such enzymes.
13. List any four uses of auxins.
14. Would you expect soybean plants to flower if given a daily light exposure of 15 hrs? Give reasons.
15. Define determinate growth and growth at the cellular level.
16. What is the difference between Florigen and other growth hormones?

- 17.** Explain how it is possible that a short day plant and a long day plant growing in the same location could flower on the same day of the year.
- 18.** How will you induce lateral branching in a plant which normally does not produce them? Give reason in support of your answer.
- 19.** Taking the examples of auxins cytokinins together explain.
  - (a) A synergetic action in plants.
  - (b) An antagonistic action in plants
- 20.** What is bioassay? Name any two bioassays for auxins.
- 21.** Define climacteric.
- 22.** Name the instrument used to measure growth in length in plants.

