



HEAD OFFICE

208, CD, LOCAL SHOPPING CENTER
AGGARWAL SHOPPING PLAZA,

BRANCH -1

AYODHYA CHOWK SEC -3
ROHINI

BRANCH -2

DC CHOWK SEC- 9, ROHINI

9TH & 10TH MATHS / SCIENCE
11TH & 12TH – PHYSICS / CHEMISTRY / MATHS / BIOLOGY
EXCLUSIVE BATCH FOR NEET / JEE ASPIRANTS
Ph no. 9696 500 500 / 9696 400 400

Ch- 15 Plant Growth and Development

1. Define growth.

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2. Define determinate growth.

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3. Name two locations/ sites in the plant body that represent meristematic phase of growth.

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4. Define growth rate.

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5. Define development.

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6. How does spraying of sugarcane plants with gibberellins increase the yield of sugar?

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7. A farmer grows cucumber plants in his field. He wants to increase the number of female flowers in them. Which plant growth regulator can be applied to achieve this?

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8. How does ethylene increase productivity in cucumber?

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9. Plant growth is unique. Justify.

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2 marks

10. Growth is one of the characteristics of all living organisms. Do unicellular organisms also grow? If so, what are the parameters?

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11. Differentiate between primary growth and secondary growth.

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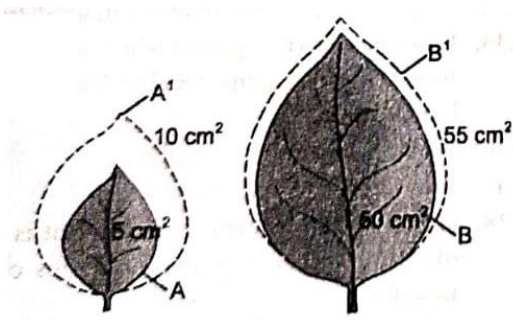
12. What is open form of growth? What type of growth rate does it show?

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13. Why is not any one parameter good enough to demonstrate growth throughout the life of a flowering plant?

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14. A primary root grows from 5 cm to 19 cm in a week. Calculate the absolute growth rate and relative growth rate over the period.



Which of them shows higher relative growth rate? Justify?

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15. To get a carpet like grass, lawns are mowed regularly. Is there any scientific explanation for this?

Or

In botanical gardens and tea plantations, gardeners trim the plants regularly so that they remain bushy. Does this practice have any scientific explanation?

Or

What is the mechanism underlying the phenomenon by which the terminal or apical bud suppresses the growth of lateral buds? Suggest measures to overcome the phenomenon.

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16. What names were given to the PGRs that were discovered as inhibitors independently by three scientists? What are they all referred to as now?

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17. Why is abscise acid also known as stress hormone?

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18. Plant growth regulators (PGRs) have innumerable practical applications. Name the PGR you should use to

- (a) increase yield of sugarcane
 - (b) promote lateral shoot growth
 - (c) cause sprouting of potato tuber
 - (d) inhibit seed germination
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19. What would be expected to happen if.

- (a) GA_3 is applied to rice seedlings.
 - (b) dividing cells stop differentiating.
 - (c) a rotten fruit gets mixed with unripe fruits.
 - (d) you forget to add cytokinin to the culture medium?
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20. Would a defoliated plant respond to photo-periodic cycle? Why?

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21. 'Both a short day plant and a long day plant can produce flowers simultaneously in a given place.' Explain.

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22. Some varieties of wheat are known as spring wheat, while others, are called winter wheat. The former variety is sown and planted in spring and is harvested by the end of the same season. However, winter varieties, if planted in spring, fail to flower or produce mature grains within a span of a flowering season. Explain why.

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23. What term is used for the promotion of flowering under low temperature? Which plant hormone can replace the cold treatment?

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3 marks

24. (a) Define seed dormancy.

(b) Mention two causes for seed dormancy.

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25. Hard seed coat is one of the causes for seed dormancy. How is dormancy due to this overcome in nature?

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26. Define the following terms:

(i) Differentiation (ii) Dedifferentiation and

(iii) Redifferentiation

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27. Both growth and differentiation in higher plants are open. Comment.

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28. How are plant growth regulators classified based on the mode of their functions? Give one example of each of them.

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29. Describe an experiment that would demonstrate that growth stimulating hormone is produced at the tip of coleoptile.

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30. Mention any six types of functions, influenced or controlled by plant growth promoters.

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31. Which one of the plant growth regulators would you use if you are asked to:

- (a) induce rooting in a twig
- (b) quickly ripen a fruit
- (c) delay leaf senescence
- (d) induce growth in axillary buds
- (e) 'bolt' a rosette plant

Induce immediate stomatal closure in leaves?

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32. Name the categories of plant hormones concerned with each of the following and describe one other function of each of the three categories of plant hormones:

(a) Inhibition of seed germination

(b) Promote flowering

(c) Cell division-promoting activity.

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33. What to you mean by photoperiodism and vernalisation? Describe their significance.

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5 marks

34. Why is not any one parameter good enough to demonstrate growth throughout the life of a flowering plant?

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35 Describe briefly the arithmetic growth.

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36. Describe briefly geometric growth.

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37. What are plant growth regulators? Name any four different chemical nature of them with an example for each.

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38. The period of growth in plants is divided into three phases, meristematic/cell division, cell elongation/enlargement and maturation.

- (a) Enumerate the characteristics of cells in the meristematic phase.
- (b) What are the characteristics of cells in the enlargement phase?
- (c) What value do you learn from these concepts?

(d) Why is there no growth/increase after a certain period?

(e) What value is learnt from this growth curve?

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41. Development in plants is under the control of intrinsic and extrinsic factors. The intrinsic factors include intracellular or genetic factors as well as intercellular factors like plant growth regulators (PGRS).

(a) What are the two groups of PGRs, based on their functions? Give an example of each of the two types.

(b) It is said that PGRs may function synergistically or antagonistically. What is meant by these two terms? Give an example for each.

(c) What is the value learnt from the study of hormone functioning?

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42. Plant growth involves three phenomena - differentiation, dedifferentiation and redifferentiation. The cells undergo differentiation to attain a form/structure, to suit the functions they perform.

- (a) What is dedifferentiation? Name two tissues formed by this process phenomenon.
- (b) What is redifferentiation?
- (c) Even differentiation can be considered as open, in plants as their growth. Justify.
- (d) What value is learnt from studying the phenomena involved in plant growth?

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