

# BOTANY

ENTHUSIAST | LEADER | ACHIEVER



## EXERCISE

Plant growth and Development

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ENGLISH MEDIUM

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EXERCISE-I (Conceptual Questions)

Build Up Your Understanding

INTRODUCTION TO DEVELOPMENT

1. Auxanometer is meant for measuring -  
 (1) Respiratory activity  
 (2) Photosynthetic activity  
 (3) Growth activity  
 (4) Osmotic pressure

PG0009

2. In plants, growth is -  
 (1) Restricted to certain regions or structure  
 (2) Irreversible  
 (3) Change in size  
 (4) All the above

PG0011

3. Plant growth is primarily affected by two climatic factors which are :-  
 (1) Light and temperature  
 (2) Temperature and relative humidity  
 (3) Light and wind  
 (4) Rainfall and temperature

PG0012

4. In a growing plant, the first phase during the process of growth is -  
 (1) Cell division  
 (2) Cell enlargement  
 (3) Cell differentiation  
 (4) Cell maturation

PG0013

5. The maximum growth rate occurs in :-  
 (1) Exponential phase (2) Stationary phase  
 (3) Senescent phase (4) Lag phase

PG0039

PLANT GROWTH REGULATORS TO SEED DORMANCY

6. Primary precursor of IAA is :-  
 (1) Phenyl alanine (2) Tyrosine  
 (3) Tryptophan (4) Leucin

PG0001

7. The biological activity of IAA is tested by :-  
 (1)  $\alpha$  - amylase test  
 (2) *Avena* curvature test  
 (3) Endosperm activity test  
 (4) Chlorophyll preservation test

PG0002

8. Indole, 3 acetic acid, called as auxin was first isolated from :-  
 (1) Human urine (2) Corn germ oil  
 (3) *Fusarium* (4) *Rhizopus*

PG0003

9. Stem elongation is affected by :-  
 (1) Gibberellin and florigen  
 (2) Auxin and gibberellin  
 (3) Florigen and cytokinin  
 (4) Florigen and auxin

PG0005

10. Apical dominance means :-  
 (1) Suppression of growth of apical bud by axillary buds  
 (2) Suppression of growth of axillary buds by the presence of apical bud.  
 (3) Stimulation of growth of axillary buds by removal of apical bud  
 (4) Inhibition of growth of axillary buds by removal of apical bud.

PG0006

11. Which of the following is not a natural occurring plant hormone ?  
 (1) 2, 4 - D (2) GA<sub>2</sub>  
 (3) Gibberellin (4) I.A.A

PG0008

12. Auxin is mainly produced by -  
 (1) Apical root meristem  
 (2) Root cambium  
 (3) Apical shoot meristem  
 (4) Phloem in shoot tip

PG0010

- 13.** Plants bend toward the light because -  
 (1) They need light for photosynthesis  
 (2) They need light for respiration  
 (3) Light attracts them  
 (4) Cells on the shaded side elongate more  
**PG0015**
- 14.** Growth hormone acts -  
 (1) Always as growth promoters  
 (2) Always as growth inhibitors  
 (3) Some as promoters and some as inhibitors  
 (4) Rarely as growth inducers  
**PG0017**
- 15.** The movement of auxin is -  
 (1) Acropetal (2) Basipetal  
 (3) Lateral (4) Centripetal  
**PG0018**
- 16.** Which growth hormone is responsible for apical dominance ?  
 (1) Auxin (2) Cytokinin  
 (3) Gibberellin (4) Ethylene  
**PG0019**
- 17.** Which of the following induces femaleness in plants ?  
 (1) Ethylene (2) Ethanol  
 (3) ABA (4) Gibberellin  
**PG0021**
- 18.** Agent orange is-  
 (1) Biodegradable insecticide  
 (2) Dioxin weedicide (2,4-D + 2,4,5-T)  
 (3) Biofertilizer  
 (4) Biopesticide  
**PG0022**
- 19.** Richmond - Lang effect is due to :-  
 (1) Cytokinin (2) Auxin  
 (3) ABA (4) Ethylene  
**PG0023**
- 20.** Photoperiodic stimulus is picked up by :  
 (1) Phytochrome (2) Phytohormone  
 (3) Enzyme (4) Vernalin  
**PG0025**
- 21.** Which of the following plant hormone substitutes for long photoperiod in flowering plant ?  
 (1) Auxin  
 (2) Gibberellin  
 (3) Cytokinin  
 (4) Ethylene  
**PG0026**
- 22.** Cytokinin -  
 (1) Is a hormone whose main function is to induce the cell division  
 (2) Induce bolting  
 (3) Induce senescence  
 (4) Causes dormancy  
**PG0028**
- 23.** Bolting hormone is -  
 (1) Auxin (2) Gibberellin  
 (3) ABA (4) Ethylene  
**PG0029**
- 24.** Gibberellins do not cause -  
 (1) Shortening of genetically tall plants  
 (2) Stimulation of seed germination  
 (3) Promotion of parthenocarpy  
 (4) Induction of  $\alpha$ -amylase synthesis in barley  
**PG0031**
- 25.** Gibberellins can promote seed germination because of their influence on :  
 (1) Rate of cell division  
 (2) Production of hydrolyzing enzymes  
 (3) Synthesis of abscisic acid  
 (4) Absorption of water through hard seed coat.  
**PG0032**

- 26.** Which of the following is a coconut milk factor ?  
 (1) Auxin (2) ABA  
 (3) Morphactin (4) Cytokinin  
**PG0033**
- 27.** In germinating seeds amylase, proteases, lipases are stimulated by :-  
 (1) Auxin (2) Gibberellin  
 (3) Cytokinin (4) Ethylene  
**PG0034**
- 28.** Which one of the following is a gaseous plant hormone ?  
 (1) Auxin (2) Gibberellin  
 (3) Ethylene (4) Cytokinin  
**PG0036**
- 29.** Apical dominance can be overcome by application of :-  
 (1) Auxin (2) Gibberellin  
 (3) Cytokinin (4) Florigen  
**PG0038**
- 30.** Dormancy of seed is broken by :-  
 (1) Auxin (2) Gibberellins  
 (3) Ethylene (4) Cytokinin  
**PG0040**
- 31.** In tissue culture, differentiation of shoot is controlled by :-  
 (1) Light Intensity  
 (2) Temperature shock  
 (3) Low Auxin to high CK ratio  
 (4) High auxin to low CK ratio  
**PG0041**
- 32.** Among the following which helps in ripening of fruits?  
 (1) Methane (2) Ethylene  
 (3) CO<sub>2</sub> (4) CO  
**PG0043**
- 33.** Absciscic acid induces :-  
 (1) Shoot elongation  
 (2) Cell elongation and cell wall formation  
 (3) Cell division  
 (4) Leaf fall and dormancy  
**PG0044**
- 34.** Which of the following is growth inhibitor ?  
 (1) IAA (2) ABA (3) NAA (4) GA<sub>3</sub>  
**PG0046**
- 35.** Absciscic acid treatment results in -  
 (1) Leaf expansion (2) Stem elongation  
 (3) Stomatal closure (4) Root elongation  
**PG0047**
- 36.** Natural cell division inducing factor occurs in -  
 (1) Coconut milk  
 (2) Corn kernels  
 (3) Both (1) and (2)  
 (4) Heated t - RNA  
**PG0048**
- 37.** Which is a stress hormone ?  
 (1) Benzyl aminopurine (BAP)  
 (2) Dichlorophenoxy acetic acid  
 (3) Ethylene  
 (4) Absciscic acid  
**PG0050**
- 38.** Seed dormancy is due to the :-  
 (1) Ethylene (2) Absciscic acid  
 (3) IAA (4) Starch  
**PG0051**
- 39.** Hormone responsible to induce senescence:-  
 (1) ABA (2) Auxin  
 (3) GA (4) Cytokinin  
**PG0052**

40. Long day plants produce flowers when they exposed to :-

- (1) Any duration of light
- (2) Light period longer than a critical day length
- (3) Light period longer than 12 hrs.
- (4) Short photoperiods than critical day length

PG0054

41. Which plant is LDP ?

- (1) Tobacco
- (2) *Glycine max*
- (3) *Xanthium*
- (4) *Spinach*

PG0056

42. Wheat & henbane are :-

- (1) SDP
- (2) DNP
- (3) LNP
- (4) LDP

PG0057

43. In short day plants (SDP) flowering is induced by:-

- (1) Long night
- (2) Photoperiod less than 12 hours
- (3) Photoperiod shorter than critical value and uninterrupted long night.
- (4) Long photoperiod and interrupted long night.

PG0058

44. Which pigment absorbs the red and far-red light?

- (1) Cytochrome
- (2) Phytochrome
- (3) Carotenoid
- (4) Chlorophyll

PG0060

45. Cell elongation in internodal regions of the green plants takes place due to :-

- (1) Ethylene
- (2) Indole acetic acid
- (3) Cytokinin
- (4) Gibberellins

PG0061

## EXERCISE-I (Conceptual Questions)

## ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	3	4	1	1	1	3	2	1	2	2	1	3	4	3	2
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	1	1	2	1	1	2	1	2	1	2	4	2	3	3	2
Que.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans.	3	2	4	2	3	3	4	2	1	2	4	4	3	2	4

**EXERCISE-II (Previous Year Questions)**

**AIPMT/NEET**

**AIPMT 2006**

1. How does pruning help in making the hedge dense  
 (1) The apical shoot grows faster after pruning  
 (2) It releases wound hormones  
 (3) It induces the differentiation of new shoots from the rootstock  
 (4) It frees axillary buds from apical dominance

**PG0063**

2. Parthenocarpic tomato fruits can be produced by?  
 (1) raising the plants from vernalized seeds  
 (2) treating the plants with phenylmercuric acetate  
 (3) removing androecium of flowers before pollen grains are released  
 (4) treating the plants with low concentrations of gibberellic acid and auxins

**PG0064**

3. An enzyme that can stimulate germination of barley seeds is  
 (1) Protease  
 (2) Invertase  
 (3)  $\alpha$  amylase  
 (4) Lipase

**PG0065**

**AIPMT 2007**

4. Which one of the following pairs, is not correctly matched ?  
 (1) IAA - Cell wall elongation  
 (2) Absciscic acid - Stomatal closure  
 (3) Gibberellic acid - Leaf fall  
 (4) Cytokinin - Cell division

**PG0066**

5. "Foolish seeding" disease of rice led to the discovery of :-  
 (1) IAA (2) GA  
 (3) ABA (4) 2, 4-D

**PG0068**

**AIPMT 2008**

6. Senescence as an active developmental cellular process in the growth and functioning of a flowering plant, is indicated in :-  
 (1) Annual plants  
 (2) Floral parts  
 (3) Vessels and tracheid differentiation  
 (4) Leaf abscission

**PG0069**

7. Importance of day length in flowering of plants was first shown in :-  
 (1) Cotton (2) *Petunia*  
 (3) *Lemna* (4) Tobacco

**PG0070**

**AIPMT 2009**

8. One of the synthetic auxin is :-  
 (1) IAA (2) GA  
 (3) IBA (4) NAA
9. Which one of the following acids is a derivative of carotenoids ?  
 (1) Indole-3-acetic acid  
 (2) Gibberellic acid  
 (3) Absciscic acid  
 (4) Indole butyric acid

**PG0072**

10. The annular and spirally thickened conducting elements generally develop in the protoxylem when the root or stem is :-  
 (1) Differentiating  
 (2) Maturing  
 (3) Elongating  
 (4) Widening

**PG0073**

**AIPMT-Pre 2010**

11. Phototropic curvature is the result of uneven distribution of :  
 (1) Gibberellin (2) Phytochrome  
 (3) Cytokinins (4) Auxin
12. Photoperiodism was first characterised in :  
 (1) Tobacco (2) Potato  
 (3) Tomato (4) Cotton

**PG0074**

**PG0075**

**AIPMT-Mains 2010**

13. Root development is promoted by :

- (1) Auxin
- (2) Gibberellin
- (3) Ethylene
- (4) Abscissic acid

PG0076

**AIPMT-Mains 2012**

14. Which one of the following generally acts as an antagonist to gibberellins ?

- (1) ABA
- (2) IAA
- (3) Zeatin
- (4) Ethylene

PG0077

15. Vernalisation stimulates flowering in :

- (1) Carrot
- (2) Ginger
- (3) Zamikand
- (4) Turmeric

PG0078

16. Through their effect on plant growth regulators, what do the temperature and light control in the plants?

- (1) Closure of stomata
- (2) Fruit elongation
- (3) Apical dominance
- (4) Flowering

PG0079

**AIPMT 2014**

17. Dr. F. Went noted that if coleoptile tips were removed and placed on agar for one hour, the agar would produce a bending when placed on one side of freshly-cut coleoptile stumps. Of what significance is this experiment ?

- (1) It made possible the isolation and exact identification of auxin.
- (2) It is the basis for quantitative determination of small amounts of growth-promoting substances.
- (3) It supports the hypothesis that IAA is auxin.
- (4) It demonstrated polar movement of auxins.

PG0080

18. A few normal seedlings of tomato were kept in a dark room. After a few days they were found to have become white-coloured like albinos. Which of the following terms will you use to describe them?

- (1) Mutated
- (2) Embolised
- (3) Etiolated
- (4) Defoliated

PG0081

19. Which one of the following growth regulators is known as stress hormone ?

- (1) Abscissic acid
- (2) Ethylene
- (3) GA<sub>3</sub>
- (4) Indole acetic acid

PG0082

**AIPMT 2015**

20. Typical growth curve in plants is :-

- (1) Linear
- (2) Stair-steps shaped
- (3) Parabolic
- (4) Sigmoid

PG0083

21. What causes a green plant exposed to the light on only one side, to bend toward the source of light as it grows ?

- (1) Green plants seek light because they are phototropic
- (2) Light stimulates plant cells on the lighted side to grow faster
- (3) Auxin accumulates on the shaded side, stimulating greater cell elongation there
- (4) Green plants need light to perform photosynthesis

PG0084

**Re-AIPMT 2015**

22. Auxin can be bioassayed by :

- (1) Lettuce hypocotyl elongation
- (2) *Avena* coleoptile curvature
- (3) Hydroponics
- (4) Potometer

PG0085



**NEET-I 2016**

23. The *Avena* curvature is used for bioassay of:
- (1) ABA (2) GA<sub>3</sub>  
(3) IAA (4) Ethylene

**PG0086**

**NEET-II 2016**

24. You are given a tissue with its potential for differentiation in an artificial culture. Which of the following pairs of hormones would you add to the medium to secure shoots as well as roots ?
- (1) Auxin and abscisic acid  
(2) Gibberellin and abscisic acid  
(3) IAA and gibberellin  
(4) Auxin and cytokinin

**PG0087**

25. Phytochrome is a :-
- (1) Lipoprotein (2) Chromoprotein  
(3) Flavoprotein (4) Glycoprotein

**PG0088**

**NEET(UG) 2017**

26. Fruit and leaf drop at early stages can be prevented by the application of:
- (1) Ethylene (2) Auxins  
(3) Gibberellic acid (4) Cytokinins

**PG0092**

**NEET(UG) 2019**

27. What is the site of perception of photoperiod necessary for induction of flowering in plants ?
- (1) Lateral buds (2) Pulvinus  
(3) Shoot apex (4) Leaves
28. It takes very long time for pineapple plants to produce flowers. Which combination of hormones can be applied to artificially induce flowering in pineapple plants throughout the year to increase yield?
- (1) Auxin and Ethylene  
(2) Gibberellin and Cytokinin  
(3) Gibberellin and Absciscic acid  
(4) Cytokinin and Absciscic acid

**PG0175**

**NEET(UG) 2019 (Odisha)**

29. Removal of shoot tips is a very useful technique to boost the production of tea-leaves. This is because:-
- (1) Gibberellins prevent bolting and are inactivated  
(2) Auxins prevent leaf drop at early stages  
(3) Effect of auxins is removed and growth of lateral buds is enhanced.  
(4) Gibberellins delay senescence of leaves.
30. In order to increase the yield of sugarcane crop, which of the following plant growth regulators should be sprayed?
- (1) Ethylene (2) Auxins  
(3) Gibberellins (4) Cytokinins

**PG0176**

**PG0177**

**NEET(UG) 2020**

31. The process of growth is maximum during :
- (1) Dormancy  
(2) Log phase  
(3) Lag phase  
(4) Senescence
32. Name the plant growth regulator which upon spraying on sugarcane crop, increases the length of stem, thus increasing the yield of sugarcane crop.
- (1) Absciscic acid  
(2) Cytokinin  
(3) Gibberellin  
(4) Ethylene
33. Which of the following is **not** an inhibitory substance governing seed dormancy?
- (1) Para-ascorbic acid  
(2) Gibberellic acid  
(3) Absciscic acid  
(4) Phenolic acid

**PG0178**

**PG0179**

**PG0180**

**NEET(UG) 2020 (COVID-19)**

34. Who coined the term 'Kinetin' ?
- (1) Skoog and Miller  
(2) Darwin  
(3) Went  
(4) Kurosawa

**PG0181**



35. Inhibitory substances in dormant seeds cannot be removed by subjecting seeds to :  
 (1) Gibberellic acid  
 (2) Nitrate  
 (3) Ascorbic acid  
 (4) Chilling conditions

PG0182

36. Match the following concerning the activity/function and the phytohormone involved:-

- |                    |                      |
|--------------------|----------------------|
| (a) Fruit ripener  | (i) Absciscic acid   |
| (b) Herbicide      | (ii) GA <sub>3</sub> |
| (c) Bolting agent  | (iii) 2, 4-D         |
| (d) Stress hormone | (iv) Ethephon        |

Select the correct option from following :-

- (1) (a)-(ii), (b)-(iii), (c)-(iv), (d)-(i)  
 (2) (a)-(iii), (b)-(iv), (c)-(ii), (d)-(i)  
 (3) (a)-(iv), (b)-(iii), (c)-(ii), (d)-(i)  
 (4) (a)-(iv), (b)-(ii), (c)-(i), (d)-(iii)

PG0183

## NEET(UG) 2021

37. Plants follow different pathways in response to environment or phases of life to form different kinds of structures. This ability is called :

- |                |                 |
|----------------|-----------------|
| (1) Elasticity | (2) Flexibility |
| (3) Plasticity | (4) Maturity    |

PG0184

38. The site of perception of light in plants during photoperiodism is :

- |                  |          |
|------------------|----------|
| (1) Shoot apex   | (2) Stem |
| (3) Axillary bud | (4) Leaf |

PG0185

39. The plant hormone used to destroy weeds in a field is :

- |         |         |           |         |
|---------|---------|-----------|---------|
| (1) IAA | (2) NAA | (3) 2,4-D | (4) IBA |
|---------|---------|-----------|---------|

PG0186

## NEET(UG) 2021 (Paper-2)

40. Which of the following is incorrectly matched pair?

- (1) Ethylene – Cousins  
 (2) Kinetin – Skoog and Miller  
 (3) Gibberellic acid – F.W. Went  
 (4) Auxin – Darwin and Darwin

PG0211

41. Match the columns I and II, and choose the correct combination from the options given.

## Column I

## Column II

- |                      |                      |
|----------------------|----------------------|
| a. Zeatin            | i. Tracheary element |
| b. Differentiation   | ii. Secondary xylem  |
| c. Auxin             | iii. Cytokinin       |
| d. Redifferentiation | iv. Indole           |

(1) a-iii, b-i, c-ii, d-iv

(2) a-iii, b-ii, c-i, d-iv

(3) a-iii, b-i, c-iv, d-ii

(4) a-iv, b-iii, c-ii, d-i

PG0212

## NEET(UG) 2022

42. Production of Cucumber has increased manifold in recent years. Application of which of the following phytohormones has resulted in this increased yield as the hormone is known to produce female flowers in the plants:

- (1) Gibberellin  
 (2) Ethylene  
 (3) Cytokinin  
 (4) ABA

PG0213

43. Which one of the following plants does **not** show plasticity ?

- |               |               |
|---------------|---------------|
| (1) Coriander | (2) Buttercup |
| (3) Maize     | (4) Cotton    |

PG0214

44. The gaseous plant growth regulator is used in plants to :

- (1) promote root growth and root hair formation to increase the absorption surface  
 (2) help overcome apical dominance  
 (3) kill dicotyledonous weeds in the fields  
 (4) speed up the malting process

PG0215

NEET(UG) 2022 (OVERSEAS)

45. The living differentiated cells, that lost the capacity to divide anymore, can regain the capacity of division under certain conditions.

This phenomenon is termed as :

- (1) Maturation (2) Differentiation  
(3) Dedifferentiation (4) Redifferentiation

PG0216

46. Which hormone is used to induce immediate stomatal closure in leaves?

- (1) Gibberellin (2) Absciscic Acid  
(3) Auxin (4) Cytokinin

PG0217

47. Removal of apical dominance by decapitation is utilised for :

- (1) Early senescence  
(2) Hedge making  
(3) Preparing weed-free lawns  
(4) Suppressing the activity of intercalary meristem

PG0218

48. Which of the following is the correct equation of exponential growth?

- (1)  $N_t = N_0 e^{rpt}$  (2)  $N_t = N_0 e^{rst}$   
(3)  $N_t = N_0 e^{rt}$  (4)  $N_t = N_0 e^{rnt}$

PG0219

Re-NEET(UG) 2022

49. Which of the following growth regulators is an adenine derivative ?

- (1) Auxin (2) Cytokinin  
(3) Ethylene (4) Absciscic acid

PG0220

50. The phenomenon by which the undividing parenchyma cells start to divide mitotically during plant tissue culture is called as :

- (1) Differentiation  
(2) Dedifferentiation  
(3) Redifferentiation  
(4) Secondary growth

PG0221

51. The ability of plants to follow different pathways in response to environment leading to formation of different kinds of structures is called :

- (1) Redifferentiation (2) Development  
(3) Plasticity (4) Differentiation

PG0222

EXERCISE-II (Previous Year Questions)

ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	4	4	3	3	2	4	4	4	3	2	4	1	1	1	1
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	4	2	3	1	4	3	2	3	4	2	2	4	1	3	3
Que.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans.	2	3	2	1	3	3	3	4	3	3	3	2	3	1	3
Que.	46	47	48	49	50	51									
Ans.	2	2	3	2	2	3									

## EXERCISE-III

## Master Your Understanding

## EXERCISE-III(A) NCERT BASED QUESTIONS

1. Which of the following is a characteristic feature of meristematic cells ?  
 (1) Cells are rich in protoplasm  
 (2) Cell walls are primary in nature  
 (3) Presence of large conspicuous nuclei  
 (4) All of the above  
**PG0109**
2. Who isolated Auxin from tip of coleoptiles of oat seedlings?  
 (1) Chales Darwin                      (2) Kogl  
 (3) F.W. Went                            (4) Skoog  
**PG0110**
3. 'Bakane' disease of rice seedlings was caused by *Gibberella fujikuroi* which is –  
 (1) a Bacteria                            (2) an Algae  
 (3) a Protista                              (4) a Fungus  
**PG0111**
4. Hormone, which is sprayed on young conifers to hasten the maturity period and early seed production, is –  
 (1) Ethylene                              (2) ABA  
 (3) Gibberellin                           (4) Cytokinin  
**PG0112**
5. Ethylene is used to initiate flowering and for synchronising fruit set in –  
 (1) Rice                                    (2) Potato  
 (3) Pineapple                              (4) Cherry  
**PG0113**
6. Growth is measured by a variety of parameters, among following which is not included in these?  
 (1) Fresh weight                          (2) Dry weight  
 (3) Surface area                           (4) Cell type  
**PG0114**
7. Spraying sugarcane crop with gibberellins increases the length of the stem, thus increasing the yield by as much as :-  
 (1) 30 tonnes per acre  
 (2) 40 tonnes per acre  
 (3) 20 tonnes per acre  
 (4) 50 tonnes per acre  
**PG0115**
8. Among the following which is not present naturally in plants?  
 (1) Auxin                                    (2) Gibberellin  
 (3) Kinetin                                  (4) Zeatin  
**PG0116**
9. Among the following which is not a function of ethylene?  
 (1) Breaks bud and seed dormancy  
 (2) Promotes root growth  
 (3) Delay senescence  
 (4) Initiate flowering  
**PG0117**
10. Plants follow different pathways in response to environment to form different kinds of structures, that is called :-  
 (1) Plasticity  
 (2) Senescence  
 (3) Photoperiodism  
 (4) Vernalisation  
**PG0118**
11. Which causes fruits like apple to elongate & improve its shape ?  
 (1) Ethylene  
 (2) Gibberellins  
 (3) Auxin  
 (4) ABA  
**PG0119**

- 12.** 2, 4-D is a :-  
 (1) Synthetic auxin  
 (2) Natural auxin  
 (3) Synthetic cytokinin  
 (4) Natural cytokinin  
**PG0120**
- 13.** Which of the following increases the tolerance of plants to various kind of stresses?  
 (1) ABA  
 (2) Ethylene  
 (3) Auxin  
 (4) Cytokinin  
**PG0121**
- 14.** Which of following is used to speed up the malting process in brewing industry ?  
 (1) Auxin (2) GA<sub>3</sub>  
 (3) Kinetin (4) ABA  
**PG0122**
- 15.** Cells/tissues arising out of the same meristem have different structures at maturity, this phenomenon in plants is called :-  
 (1) Open growth  
 (2) Open differentiation  
 (3) Indeterminate growth  
 (4) Determinate differentiation  
**PG0123**
- 16.** The gaseous plant growth regulator ethylene could fit in the group of :-  
 (1) Plant growth inhibitors  
 (2) Plant growth promoters  
 (3) Both (1) and (2)  
 (4) Neither inhibitors nor promoters  
**PG0124**
- 17.** Which of the following physiological effects, is common to both Auxin and Ethylene?  
 (1) Sprouting of potato tuber  
 (2) Petiole elongation in deep water rice plants  
 (3) Flowering in pineapple  
 (4) Weed killing  
**PG0125**
- 18.** Which of the following is not correctly matched?  
 (1) Delay leaf senescence  $\Rightarrow$  Cytokinin  
 (2) Induce rooting in a twig  $\Rightarrow$  Auxin  
 (3) Induce growth in axillary bud  $\Rightarrow$  Auxin  
 (4) Quickly ripen a fruit  $\Rightarrow$  Ethylene  
**PG0127**
- 19.** Regarding factors affecting the development, PGR is the :-  
 (1) Extrinsic control  
 (2) Intrinsic intra cellular control  
 (3) Neither intrinsic nor extrinsic control  
 (4) Intrinsic intercellular control  
**PG0131**
- 20.** Arithmetic growth is related to :-  
 (1)  $L_t = L_0 e^{rt}$  (2)  $W_1 = W_0 e^{rt}$   
 (3)  $L_t = L_0 + rt$  (4)  $L_0 = L_t e^{rt}$   
**PG0138**
- 21.** The site of perception of light/dark duration are the:-  
 (1) meristems  
 (2) floral buds  
 (3) mature leaves  
 (4) lateral buds  
**PG0140**

22. Which statement is not correct about ethylene ?
- (1) Synthesized in large amount by tissues undergoing senescence.
  - (2) Enhances respiration rate during ripening of the fruits
  - (3) Breaks dormancy in peanut seeds
  - (4) Promotes male flowers in cucumber

PG0144

23. Which of the following plant growth regulators is responsible for respiratory climatic ?
- (1) Auxin
  - (2) Ethylene
  - (3) ABA
  - (4) Cytokinin

PG0146

24. (i) Promote nutrient mobilisation  
(ii) Overcome the apical dominance  
(iii) Lateral shoot growth  
All the above physiological effects are related to which of the following plant growth regulators?
- (1) Auxins
  - (2) Gibberellins
  - (3) Absciscic acid
  - (4) Cytokinins

PG0148

25. Which of the following statements are correct regarding growth?
- (A) In plants, the form of growth is open and localised
  - (B) Swelling of piece of wood in water is considered as growth since it involve the increase in size
  - (C) Growth is accompanied by metabolic processes
  - (D) Growth, at a cellular level, is a result of increase in the amount of protoplasm
- (1) All the statements are correct
  - (2) A and B
  - (3) B, C and D
  - (4) A, C and D

PG0187

26. Meristematic phase of growth is characterised by :

- (1) Increased vacuolation
- (2) Maximal size in terms of protoplasmic modifications
- (3) Cells those are rich in protoplasm and having thin cell walls with abundant plasmodesmata
- (4) Cell enlargement

PG0188

27. Which of the following is/are related to the type of growth in which both the progeny cells, arise from mother cell, retain the ability to divide?

- (A) Sigmoid curve
  - (B) expressed as  $W_1 = W_0 + rt$
  - (C) Linear curve
  - (D) Three phases - Lag, exponential and stationary
- (1) A and D
  - (2) A, B and D
  - (3) Only C
  - (4) B and C

PG0189

28. Match the following :

- |                    |                                |
|--------------------|--------------------------------|
| (A) Auxin          | (i) Derivatives of carotenoids |
| (B) Gibberellin    | (ii) Gas                       |
| (C) Cytokinin      | (iii) Adenine derivatives      |
| (D) Ethylene       | (iv) Terpenes                  |
| (E) Absciscic acid | (v) Indole compounds           |
- (1) A - i, B - ii, C - iii, D - iv, E - v
  - (2) A - ii, B - i, C - v, D - iii, E - iv
  - (3) A - v, B - iv, C - iii, D - ii, E - i
  - (4) A - iv, B - iii, C - i, D - ii, E - v

PG0190

29. Match the following :

- |                                 |                      |
|---------------------------------|----------------------|
| (A) Human urine                 | (i) Ethylene         |
| (B) Coconut milk                | (ii) GA <sub>3</sub> |
| (C) Ripened oranges             | (iii) Auxin          |
| (D) <i>Gibberella fujikuroi</i> | (iv) Cytokinin       |

(1) A - iii, B - iv, C - i, D - ii

(2) A - i, B - ii, C - iii, D - iv

(3) A - iv, B - iii, C - ii, D - i

(4) A - ii, B - i, C - iv, D - iii

**PG0191**

30. Match the following :

- |                    |                                |
|--------------------|--------------------------------|
| (A) Cytokinin      | (i) Weed free lawns            |
| (B) Auxin          | (ii) Brewing industry          |
| (C) Abscissic acid | (iii) Root hair formation      |
| (D) Ethylene       | (iv) Overcome apical dominance |

(E) Gibberellin (v) Stress hormone

(1) A - iv, B - i, C - v, D - ii, E - iii

(2) A - i, B - ii, C - v, D - iii, E - iv

(3) A - iii, B - iv, C - v, D - i, E - ii

(4) A - iv, B - i, C - v, D - iii, E - ii

**PG0192**

31. Which of the following occur naturally in plants?

- (1) 2, 4-dichlorophenoxyacetic acid
- (2) Indole butyric acid
- (3) Naphthalene acetic acid
- (4) Kinetin

**PG0193**

32. Plants, in which there is no correlation between exposure to light duration and induction of flowering response, are called:

- (1) Day neutral plants
- (2) Long day plants
- (3) Short day plants
- (4) Monocarpic plants

**PG0194**

33. Which of the following is not a biennial plant?

- |              |               |
|--------------|---------------|
| (1) Barley   | (2) Sugarbeet |
| (3) Cabbages | (4) Carrots   |

**PG0195**

34. Swelling of piece of wood when placed in water is not considered as growth because:

- (1) It does not occur at expense of energy
- (2) It is not a metabolic change
- (3) It is reversible process
- (4) All of the above

**PG0196**

35. Plant growth is unique because :

- (1) It is intrinsic
- (2) It occurs at the expense of energy
- (3) Plant retains the capacity for unlimited growth throughout their life
- (4) Its accompanied by metabolic processes

**PG0197**

36. Growth at a cellular level, is principally a consequence of increase in amount of :

- |                        |              |
|------------------------|--------------|
| (1) Cell wall material | (2) Water    |
| (3) Protoplasm         | (4) Cell sap |

**PG0198**

37. Cells with increased vacuolation, cell enlargement and new cell wall deposition are the characteristic features of which phase of growth ?

- (1) Meristematic phase
- (2) Elongation phase
- (3) Maturation phase
- (4) Differentiation phase

**PG0199**

38. Trees showing seasonal activities, represent what kind of growth curve ?

- |              |               |
|--------------|---------------|
| (1) Sigmoid  | (2) Linear    |
| (3) J-shaped | (4) Hyperbola |

**PG0200**

39. Quantitative comparisons between the growth of living systems can be made by :

- (1) Absolute growth rate
- (2) Relative growth rate
- (3) Exponential growth rate
- (4) Both (1) and (2)

**PG0201**

40. Nutrients both macro and micro essential elements are required by plant during growth for:

- (1) Synthesis of protoplasm
- (2) As source of energy
- (3) Enzyme of activation
- (4) All of the above

PG0202

41. Parenchyma cells that are made to divide under controlled laboratory conditions during plant tissue culture, represents :

- (1) Differentiation
- (2) Dedifferentiation
- (3) Redifferentiation
- (4) Undifferentiated mass of cells

PG0203

42. Select out the incorrect match :

- (1) GA - speed up malting process
- (2) Auxin - Xylem differentiation
- (3) Cytokinin - Adventitious shoot formation
- (4) Ethylene - Lateral shoot growth

PG0204

43. Removal of shoot tip (decapitation) is useful in :

- (1) Promotion of Apical dominance
- (2) Bolting
- (3) Tea plantation
- (4) Senescence

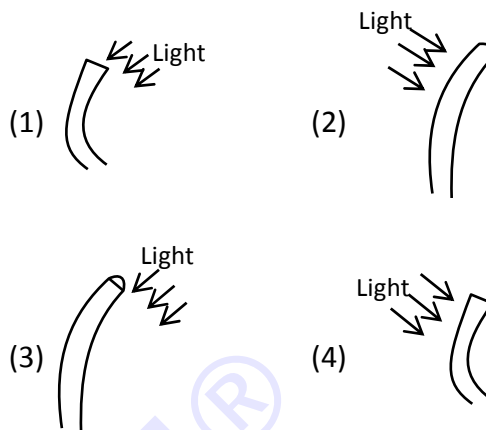
PG0205

44. Which of the following phenomenon in plants requires interaction of more than one plant growth regulator :-

- (1) Breaking of seeds/buds dormancy
- (2) Abscission
- (3) Senescence
- (4) All of the above

PG0206

45. Which of diagram is **correct** about the curvature of coleoptile ?



PG0207

46. Which of the following is/are correct about Kinetin ?

- (1) Kinetin occurs naturally in plants
- (2) It is a modified form of a purine
- (3) Isolated from herring egg DNA
- (4) All of the above

PG0208

47. Which of the following plant growth regulators (PGRs) belongs to that group of PGRs which play an important role in plant response to wounds?

- (1) Auxin
- (2) Gibberellin
- (3) Cytokinin
- (4) Absciscic acid

PG0209

48. Which of the following plant growth regulators is synthesised in large amounts by tissues undergoing senescence and ripening fruits ?

- (1) Gibberellin
- (2) Zeatin
- (3) IBA
- (4) Ethylene

PG0210

### EXERCISE-III(B) ANALYTICAL QUESTIONS

49. Select out the incorrect match :-

- (1) Water → Cell enlargement
- (2) Oxygen → Enzyme activation
- (3) Minerals → Osmotic regulation
- (4) Light → Flowering

PG0129



**50.** Which of the following activities does not involve the role of GA?

- (1) Seed germination
- (2) Malting
- (3) Root growth
- (4) Flowering in LDPs

**PG0136**

**51.** Removal of shoot tips (decapitation) usually results in the growth of lateral buds. It is related to the removal of effect of which plant hormone?

- (1) Ethylene
- (2) Auxin
- (3) Cytokinin
- (4) Gibberellic acid

**PG0137**

**52.** Which plant hormone promotes the growth of lateral buds ?

- (1) Auxin
- (2) Cytokinin
- (3) Gibberellin
- (4) Absciscic acid

**PG0139**

**53.** Which hormone pair is of hypothetical hormones?

- (1) NAA, GA<sub>3</sub>
- (2) Florigen, vernalin
- (3) ABA, kinetin
- (4) 2,4-D, Gibberellin

**PG0141**

**54.** Photoperiodism was discovered by :-

- (1) Lysenko, Klippart
- (2) Borthwick, Hendricks
- (3) Garner, Allard
- (4) Singer, Nicolson

**PG0142**

**55.** Hormone involved in induction of  $\alpha$ -amylase in Barley endosperm :

- (1) GA
- (2) NAA
- (3) Ethylene
- (4) ABA

**PG0143**

**EXERCISE-III**

**ANSWER KEY**

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	4	3	4	3	3	4	3	3	3	1	2	1	1	2	2
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	3	3	3	4	3	3	4	2	4	4	3	1	3	1	4
Que.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans.	2	1	1	4	3	3	2	1	4	4	2	4	3	4	3
Que.	46	47	48	49	50	51	52	53	54	55					
Ans.	2	4	4	2	3	2	2	2	3	1					