

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

BPD001

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

BPD002

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

BPD003

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

BPD004

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

BPD005

PLANT GROWTH REGULATORS TO SEED DORMANCY

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

BPD006

7. The biological activity of I.A.A is tested by :-
 (1) α -amylase test
 (2) Avena curvature test
 (3) Endosperm activity test
 (4) Chlorophyll preservation test

BPD007

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

BPD008

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

BPD009

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.

BPD010

11. Which of the following is not a natural occurring plant hormone ?
 (1) 2, 4 - D (2) GA₂
 (3) Gibberellin (4) I.A.A

BPD011

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

BPD012

- 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
BPD013
- 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
BPD014
- 15.** The movement of auxin is -
 (1) Acropetal (2) Basipetal
 (3) Lateral (4) Centripetal
BPD015
- 16.** Which growth hormone is responsible for apical dominance ?
 (1) Auxin (2) Cytokinin
 (3) Gibberellin (4) Ethylene
BPD016
- 17.** Which of the following induces femaleness in plants ?
 (1) Ethylene (2) Ethanol
 (3) ABA (4) Gibberellin
BPD017
- 18.** Agent orange is-
 (1) Biodegradable insecticide
 (2) Dioxin weedicide (2,4-D + 2,4,5-T)
 (3) Biofertilizer
 (4) Biopesticide
BPD018
- 19.** Richmond - Lang effect is due to :-
 (1) Cytokinin (2) Auxin
 (3) ABA (4) Ethylene
BPD019

- 20.** 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 need light to perform photosynthesis.
 (2) Green plants seek light because they are phototropic.
 (3) Light stimulates plant cells on the lighted side to grow faster.
 (4) Auxin accumulates on the shaded side, stimulating greater cell elongation there.
BPD170
- 21.** Which of the following plant hormone substitutes for long photoperiod in flowering plant ?
 (1) Auxin
 (2) Gibberellin
 (3) Cytokinin
 (4) Ethylene
BPD021
- 22.** Cytokinin -
 (1) Is a hormone whose main function is to induce the cell division
 (2) Induce bolting
 (3) Induce senescence
 (4) Causes dormancy
BPD022
- 23.** Bolting hormone is -
 (1) Auxin (2) Gibberellin
 (3) ABA (4) Ethylene
BPD023
- 24.** Gibberellins do not cause -
 (1) Shortening of genetically tall plants
 (2) Stimulation of seed germination
 (3) Promotion of parthenocarpy
 (4) Induction of α -amylase synthesis in barley
BPD024

25. Gibberellins can promote seed germination because of their influence on :
 (1) Rate of cell division
 (2) Production of hydrolysing enzymes
 (3) Synthesis of abscisic acid
 (4) Absorption of water through hard seed coat.
BPD025
26. Which of the following is a coconut milk factor ?
 (1) Auxin (2) ABA
 (3) Morphactin (4) Cytokinin
BPD026
27. In germinating seeds Amylase, Proteases, Lipases are stimulated by :-
 (1) Auxin (2) Gibberellin
 (3) Cytokinin (4) Ethylene
BPD027
28. Which one of the following is a gaseous plant hormone ?
 (1) Auxin (2) Gibberellin
 (3) Ethylene (4) Cytokinin
BPD028
29. Apical dominance can be overcome by application of :-
 (1) Auxin (2) Gibberellin
 (3) Cytokinin (4) Florigen
BPD029
30. Dormancy of seed is broken by :-
 (1) Auxin (2) Gibberellins
 (3) Ethylene (4) Cytokinin
BPD030
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
BPD031
32. Among the following which helps in ripening of fruits?
 (1) Methane (2) Ethylene
 (3) CO₂ (4) CO
BPD032
33. Absciscic acid induces :-
 (1) Shoot elongation
 (2) Cell elongation and cell wall formation
 (3) Cell division
 (4) Leaf fall and dormancy
BPD033
34. Which of the following is growth inhibitor ?
 (1) IAA (2) ABA
 (3) NAA (4) GA₃
BPD034
35. Absciscic acid treatment results in -
 (1) Leaf expansion
 (2) Stem elongation
 (3) Stomatal closure
 (4) Root elongation
BPD035
36. Natural cell division inducing factor occurs in-
 (1) Coconut milk
 (2) Immature maize seeds
 (3) Both (1) and (2)
 (4) Heated t – RNA
BPD036
37. Which is a stress hormone ?
 (1) Benzyl aminopurine (BAP)
 (2) Dichlorophenoxy acetic acid
 (3) Ethylene
 (4) Absciscic acid
BPD037
38. Seed dormancy is due to the :-
 (1) Ethylene (2) Absciscic acid
 (3) IAA (4) Starch
BPD038

- 39.** Hormone responsible to induce senescence :-
 (1) ABA (2) Auxin
 (3) GA (4) Cytokinin
BPD039
- 40.** Decapitation i.e. removal of shoot tips in a plant usually results in :-
 (1) Inactivation of lateral buds
 (2) Growth of lateral buds
 (3) Cessation of plant growth
 (4) Yellowing of leaves
BPD171
- 41.** Which hormone is used to initiate flowering and synchronizing fruit set in pineapple ?
 (1) Ethylene (2) Kinetin
 (3) GA₃ (4) ABA
BPD172
- 42.** Cell elongation in internodal regions of the green plants takes place due to :-
 (1) Ethylene (2) Indole acetic acid
 (3) Cytokinin (4) Gibberellins
BPD045
- 43.** The most widely used compound as sources of C₂H₄ is-
 (1) Kinetin (2) Zeatin
 (3) IBA (4) Ethephon
BPD152
- 44.** Which of the following plants hormone show triple response on stem-
 (1) Auxin (2) Gibberellin
 (3) Cytokinin (4) Ethylene
BPD153
- 45.** When a plant faces scarcity of water, which of the following hormone synthesized in mesophyll tissue-
 (1) Auxin (2) Gibberellin
 (3) Cytokinin (4) Absciscic acid
BPD154

EXERCISE-I (Conceptual Questions)

ANSWER KEY

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

Exercise - II (Previous Year Questions)

AIPMT/NEET

AIPMT 2014

1. 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.

BPD063

2. 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

BPD064

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

- (1) Absciscic acid
- (2) Ethylene
- (3) GA₃
- (4) Indole acetic acid

BPD065

AIPMT 2015

4. Typical growth curve in plants is: -

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

BPD066

5. 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

BPD067

Re-AIPMT 2015

6. Auxin can be bio assayed by:

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

BPD068

NEET-I 2016

7. The Avena curvature is used for bioassay of:

- | | |
|---------|---------------------|
| (1) ABA | (2) GA ₃ |
| (3) IAA | (4) Ethylene |

BPD069

NEET-II 2016

8. 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

BPD070

9. Phytochrome is a:

- (1) Lipoprotein (2) Chromoprotein
(3) Flavoprotein (4) Glycoprotein

BPD071

NEET-UG 2017

10. Fruit and leaf drop at early stages can be prevented by the application of:

- (1) Ethylene (2) Auxins
(3) Gibberellic acid (4) Cytokinins

BPD072

NEET-UG 2019

11. 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

BPD073

12. 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

BPD074

NEET-UG [Odisha] 2019

13. 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.

BPD075

14. 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

BPD076

NEET-UG 2020

15. The process of growth is maximum during :

- (1) Dormancy (2) Log phase
(3) Lag phase (4) Senescence

BPD077

16. 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

BPD078

NEET-UG [COVID-19] 2020

17. Inhibitory substances in dormant seeds cannot be removed by subjecting seeds to :

- (1) Gibberellic acid
(2) Nitrate
(3) Ascorbic acid
(4) Chilling conditions

BPD079

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

- | | |
|--------------------|----------------------|
| (a) Fruit ripener | (i) Absciscic acid |
| (b) Herbicide | (ii) GA ₃ |
| (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)

BPD080

NEET-UG 2021

19. 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 |

BPD081

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

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

BPD082

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

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

BPD083

NEET-UG [Paper-2] 2021

22. 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

BPD084

23. 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

BPD085

NEET-UG 2022

24. 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 |

BPD086

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

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

BPD087

26. 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

BPD088

Re-NEET-UG 2022

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

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

BPD089

28. 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

BPD090

29. 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

BPD091

NEET-UG 2023

30. Spraying of which of the following phytohormone on juvenile conifers helps in hastening the maturity period, that leads to early seed production ?

- (1) Gibberellic Acid (2) Zeatin
(3) Absciscic Acid (4) Indole-3-butyric Acid

BPD147

31. Which hormone promotes internode/petiole elongation in deep water rice?

- (1) Kinetin (2) Ethylene
(3) 2, 4-D (4) GA₃

BPD148

32. In tissue culture experiments, leaf mesophyll cells are put in a culture medium to form callus. This phenomenon may be called as:

- (1) Dedifferentiation (2) Development
(3) Senescence (4) Differentiation

BPD149

NEET-UG 2023 (Manipur)

33. The phenomenon which is influenced by auxin and also played a major role in its discovery :

- (1) Phototropism (2) Root initiation
(3) Gravitropism (4) Apical Dominance

BPD150

34. Match List-I with List-II.

	List-I		List-II
(A)	Auxin	(I)	Promotes female flower formation in cucumber
(B)	Gibberellin	(II)	Overcoming apical dominance
(C)	Cytokinin	(III)	Increase in the length of grape stalks
(D)	Ethylene	(IV)	Promotes flowering in pineapple

Choose the **correct** answer from the options given below :

- (1) (A)-(II), (B)-(I), (C)-(IV), (D)-(III)
(2) (A)-(IV), (B)-(III), (C)-(II), (D)-(I)
(3) (A)-(I), (B)-(III), (C)-(IV), (D)-(II)
(4) (A)-(III), (B)-(II), (C)-(I), (D)-(IV)

BPD151

NEET-UG 2024

35. Auxin is used by gardeners to prepare weed-free lawns. But no damage is caused to grass as auxin

- (1) promotes apical dominance.
(2) promotes abscission of mature leaves only.
(3) does not affect mature monocotyledons plants.
(4) can help in cell division in grasses, to produce growth.

BPD165

36. Spraying sugarcane crop with which of the following plant growth regulators, increases the length of stem, thus, increasing the yield ?

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

BPD166

RE-NEET-UG 2024

37. Match List-I with List-II.

- | List-I | List-II |
|-------------------|--|
| A. Absciscic acid | I. Promotes female flowers in cucumber |
| B. Ethylene | II. Helps seeds to Withstand desiccation |
| C. Gibberellin | III. Helps in nutrient mobilisation |
| D. Cytokinin | IV. Promotes bolting in beet, cabbage etc. |

Choose the **correct** answer from the options given below :-

- (1) A-II, B-III, C-IV, D-I
(2) A-III, B-II, C-I, D-IV
(3) A-II, B-I, C-IV, D-III
(4) A-II, B-I, C-III, D-IV

BPD167

38. F. Skoog observed that callus proliferated from the internodal segments of tobacco stem when auxin was supplied with one of the following except :-

- (1) Extract of Vascular tissue
(2) Coconut milk
(3) Absciscic acid
(4) Yeast Extract

BPD168

39. Given below are some statements about plant growth regulators.

- (A) All GAs are acidic in nature.
(B) Auxins are antagonists to GAs.
(C) Zeatin was isolated from coconut milk.
(D) Ethylene induces flowering in Mango.
(E) Absciscic acid induces parthenocarpy.

Choose the **correct** set of statements from the option given below :-

- (1) A, C, D (2) B, E
(3) A, B, C (4) B, D, E

BPD169

EXERCISE-II (Previous Year Questions)

ANSWER KEY

Question	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Answer	2	3	1	4	3	2	3	4	2	2	4	1	3	3	2
Question	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Answer	3	3	3	3	4	3	3	3	2	3	1	2	2	3	1
Question	31	32	33	34	35	36	37	38	39						
Answer	2	1	1	2	3	2	3	3	1						

Exercise - III

Master Your Understanding

(A) NCERT BASED QUESTIONS

- 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

BPD092

- Who isolated Auxin from tip of coleoptiles of oat seedlings?
 (1) Chales Darwin (2) Kogl
 (3) F.W. Went (4) Skoog

BPD093

- 'Bakanae disease of rice seedlings' was caused by *Gibberella fujikuroi* Which is -
 (1) a Bacteria (2) an Algae
 (3) a Protista (4) a Fungus

BPD094

- 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

BPD095

- Ethylene is used to initiate flowering and for synchronising fruit set in -
 (1) Rice (2) Potato
 (3) Pineapple (4) Cherry

BPD096

- 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

BPD097

- 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

BPD098

- Among the following which is not present naturally in plants?
 (1) Auxin (2) Gibberellin
 (3) Kinetin (4) Zeatin

BPD099

- 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

BPD100

- 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

BPD101

- Which causes fruits like apple to elongate & improve its shape ?
 (1) Ethylene (2) Gibberellins
 (3) Auxin (4) ABA

BPD102

- 2, 4-D is a :-
 (1) Synthetic auxin
 (2) Natural auxin
 (3) Synthetic cytokinin
 (4) Natural cytokinin

BPD103

13. Which of the following increases the tolerance of plants to various kind of stresses?

(1) ABA (2) Ethylene
(3) Auxin (4) Cytokinin

BPD104

14. Which of following is used to speed up the malting process in brewing industry ?

(1) Auxin (2) GA₃
(3) Kinetin (4) ABA

BPD105

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

BPD106

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

BPD107

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

BPD108

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

BPD109

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 inter cellular control

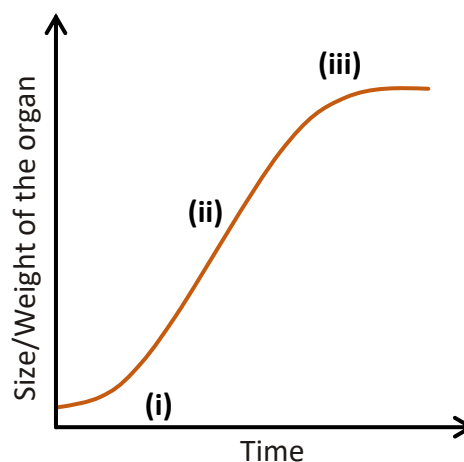
BPD110

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) $L_0 = L_t e^{rt}$

BPD111

21. Go through the following figure :-



Choose the correct labelling.

	(i)	(ii)	(iii)
(1)	Log phase	Exponential phase	Stationary phase
(2)	Lag phase	Exponential phase	Stationary phase

(3)	Exponential phase	Log phase	Stationary phase
(4)	Stationary phase	Exponential phase	Log phase

BPD173

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

BPD113

23. Which of the following plant growth regulators is responsible for 'respiratory climactic'?

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

BPD114

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

BPD115

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) A, B, C and D
- (2) A and B
- (3) B, C and D
- (4) A, C and D

BPD116

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

BPD117

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

BPD118

28. Match the following :

- (A) Auxin
- (B) Gibberellin
- (C) Cytokinin
- (D) Ethylene
- (E) Absciscic acid
- (i) Derivatives of carotenoids
- (ii) Gas
- (iii) Adenine derivatives
- (iv) Terpenes
- (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

BPD119

29. Match the following :

- | | |
|---------------------------------|----------------------|
| (A) Human urine | (i) Ethylene |
| (B) Coconut milk | (ii) GA ₃ |
| (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

BPD120

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

BPD121

31. Which of the following occur naturally in plants?

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

BPD122

32. Consider the following statements.

- (I) The basis to the phenomenon of growth is formation of new protoplasm.
 (II) Growth is maximum in zone of cell elongation.

Choose the correct option.

- (1) Statement I is true, but II is false.
 (2) Statement I is false, but II is true.
 (3) Statement I and II are true.
 (4) Statement I and II are false.

BPD174

33. 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

BPD125

34. 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

BPD126

35. 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

BPD127

36. 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

BPD128

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

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

BPD129

38. 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)

BPD130

39. 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

BPD131

40. 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

BPD132

41. 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

BPD133

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

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

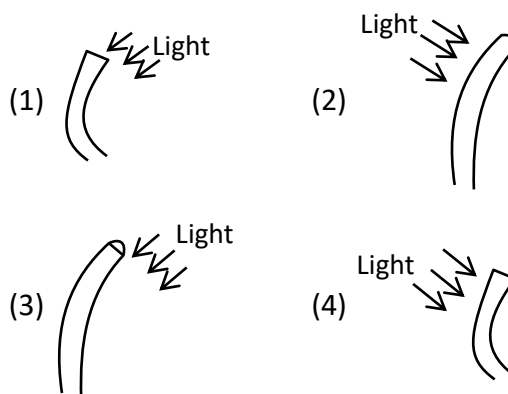
BPD134

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

- (1) Dormancy in seeds/buds
(2) Apical dominance
(3) Senescence
(4) All of the above

BPD135

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



BPD136

45. 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

BPD137

46. 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

BPD138

47. 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

BPD139

(B) ANALYTICAL QUESTIONS

48. Select out the incorrect match :-

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

BPD140

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

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

BPD141

50. 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

BPD142

51. Which plant hormone promotes the growth of lateral buds ?

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

BPD143

52. Hormone involved in induction of α -amylase in Barley endosperm :-

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

BPD146

53. 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 root stock

(4) It frees axillary buds from apical dominance

BPD046

54. 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

BPD047

55. An enzyme that can stimulate germination of barley seeds is

- (1) Protease
- (2) Invertase
- (3) α -amylase
- (4) Lipase

BPD048

56. 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

BPD049

57. "Foolish seeding" disease of rice led to the discovery of: -

- (1) IAA
- (2) GA
- (3) ABA
- (4) 2, 4-D

BPD051

58. 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

BPD052

59. One of the synthetic auxin is: -
(1) IAA (2) GA (3) IBA (4) NAA

BPD054

60. 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

BPD055

61. 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

BPD056

62. Phototropic curvature is the result of uneven distribution of:
(1) Gibberellin (2) Phytochrome
(3) Cytokinins (4) Auxin

BPD057

63. Root development is promoted by:
(1) Auxin (2) Gibberellin
(3) Ethylene (4) Absciscic acid

BPD059

64. Which one of the following generally acts as an antagonist to gibberellins?
(1) ABA (2) IAA
(3) Zeatin (4) Ethylene

BPD060

65. 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

BPD062

66. **Assertion** : Gibberellins promote bolting in beet, cabbages and many plants with rosette habit.

Reason : It promotes internode elongation just prior to flowering.

- (1) Both Assertion & Reason are True & the Reason is a correct explanation of the Assertion.
(2) Both Assertion & Reason are True but Reason is not a correct explanation of the Assertion.
(3) Assertion is True but the Reason is False.
(4) Both Assertion & Reason are False.

BPD155

67. **Assertion** : Plants retain the capacity for unlimited growth throughout their life.

Reason : Plants have meristems in their body.

- (1) Both Assertion & Reason are True & the Reason is a correct explanation of the Assertion.
(2) Both Assertion & Reason are True but Reason is not a correct explanation of the Assertion.
(3) Assertion is True but the Reason is False.
(4) Both Assertion & Reason are False.

BPD156

68. **Assertion**: Cytokinin helps in the delay of leaf senescence.

Reason: Cytokinin promote nutrient mobilisation.

- (1) Both Assertion & Reason are True & the Reason is a correct explanation of the Assertion.
(2) Both Assertion & Reason are True but Reason is not a correct explanation of the Assertion.
(3) Assertion is True but the Reason is False.
(4) Both Assertion & Reason are False.

BPD157

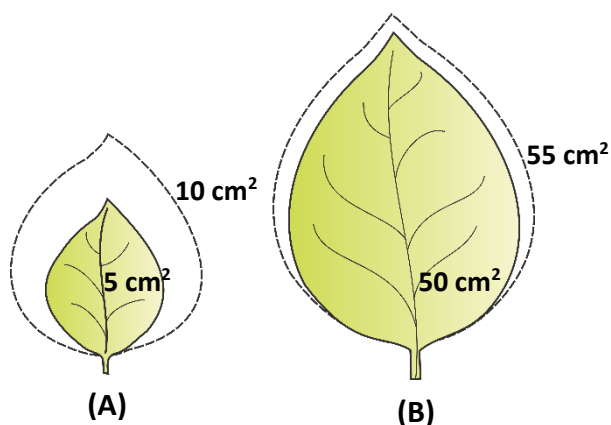
69. Match the following :

(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

BPD158

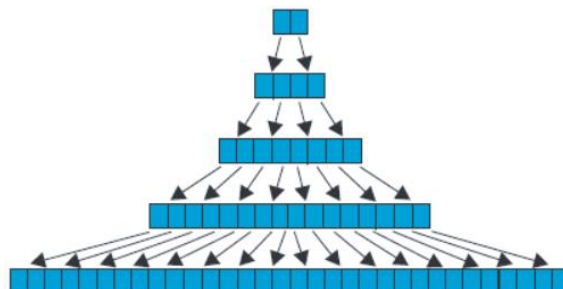
70. The given figures shows the growth of two leaves in a given time. If, AGR = absolute growth and RGR = relative growth rate, then select the correct option :-



	AGR for leaf A	RGR for leaf A	AGR for leaf B	RGR for leaf B
(1)	5	5%	5	5%
(2)	10	10%	55	10%
(3)	5	100 %	5	10 %
(4)	5	100 %	5	100 %

BPD159

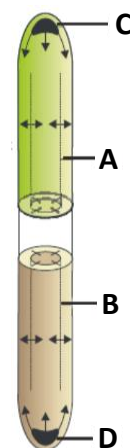
71. What type of growth is represented in the following diagram ?



- (1) Arithmetic
 (2) Geometric
 (3) Root elongation at a constant rate
 (4) Both (1) & (2)

BPD160

72. Choose the correct option for A,B,C or D :-



- (1) A - Primary growth
 (2) B - Secondary growth
 (3) C - Lateral growth
 (4) D - Terminal

BPD161

73. One single maize root apical meristem can give rise to more than

- (1) 17,500 new cells per minute
 (2) 17,500 new cells per hour
 (3) 17,500 new cells per day
 (4) 17,500 new cells per week

BPD162

74. Match the columns :

	Column-I		Column-II
(1)	Human urine	(a)	Cytokinin
(2)	<i>Gibberella fujikuroi</i>	(b)	Auxin
(3)	Herring fish DNA	(c)	Ethylene
(4)	Ripening fruits	(d)	Absciscic acid
(5)	Aged leaves of plants	(e)	Gibberellins

(1) 1-e, 2-d, 3-c, 4-b, 5-a

(2) 1-b, 2-c, 3-d, 4-e, 5-a

(3) 1-a, 2-e, 3-b, 4-d, 5-c

(4) 1-b, 2-e, 3-a, 4-c, 5-d

BPD163

75. **Assertion:** Development is a term that includes all changes that an organism goes through during its life cycle.

Reason: Plants follow different pathways in response to environment or phases of life to form different kinds of structures.

(1) Both Assertion & Reason are True & the Reason is a correct explanation of the Assertion.

(2) Both Assertion & Reason are True but Reason is not a correct explanation of the Assertion.

(3) Assertion is True but the Reason is False.

(4) Both Assertion & Reason are False.

BPD164

EXERCISE-III

ANSWER KEY

Question	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Answer	4	3	4	3	3	4	3	3	3	1	2	1	1	2	2
Question	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Answer	3	3	3	4	3	2	4	2	4	4	3	1	3	1	4
Question	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Answer	2	3	4	3	3	2	1	4	4	2	4	3	4	3	2
Question	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Answer	4	4	2	3	2	2	1	4	4	3	3	2	4	4	3
Question	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
Answer	2	4	1	1	4	1	1	1	3	3	2	2	2	4	2