

Q1. Growth in plants is generally:

- A. Intrinsic and irreversible
- B. Extrinsic and reversible
- C. Always determinate
- D. Limited to meristematic tissues only

Answer: A

Explanation: Growth in plants is intrinsic (from within) and irreversible, meaning once a cell enlarges or divides, it cannot return to its original state.

Q2. The sigmoid growth curve in plants has how many distinct phases?

- A. 2
- B. 3
- C. 4
- D. 5

Answer: B

Explanation: The sigmoid or S-shaped growth curve has three phases — lag phase, log/exponential phase, and stationary phase.

Q3. The log phase of the growth curve is characterized by:

- A. No growth
- B. Slow growth
- C. Maximum growth rate
- D. Death of cells

Answer: C

Explanation: The log phase or exponential phase is the phase of maximum growth, where cells divide rapidly.

Q4. A plant hormone that inhibits cell division is:

- A. Auxin
- B. Cytokinin
- C. Gibberellin
- D. Absciscic acid

Answer: D

Explanation: ABA (Absciscic acid) is a growth inhibitor, promoting dormancy and inhibiting cell division and elongation.

Q5. Which of the following is not a naturally occurring plant hormone?

- A. Indole-3-acetic acid
- B. Zeatin
- C. Ethylene
- D. 2,4-D

Answer: D

Explanation: 2,4-D is a synthetic auxin used as a herbicide. The rest are naturally occurring hormones.

Q6. Which PGR promotes cell elongation and is responsible for bolting in plants?

- A. Auxin
- B. Ethylene
- C. Gibberellin
- D. Cytokinin

Answer: C

Explanation: Gibberellins promote cell elongation and are responsible for bolting (elongation of internodes before flowering).

Q7. Which plant hormone promotes root initiation?

- A. Cytokinin
- B. Ethylene
- C. Auxin
- D. ABA

Answer: C

Explanation: Auxins promote adventitious root formation and are used in rooting powders.

Q8. Which of the following increases the shelf life of fruits?

- A. Ethylene
- B. Cytokinin
- C. ABA
- D. Auxin

Answer: B

Explanation: Cytokinins delay senescence, thereby increasing the shelf life of leaves and fruits.

Q9. The hormone that promotes stomatal closure under water stress is:

- A. Ethylene
- B. ABA
- C. Auxin
- D. Gibberellin

Answer: B

Explanation: ABA helps plants survive under drought by inducing stomatal closure to reduce water loss.

Q10. Seed dormancy is primarily regulated by:

- A. Auxin
- B. Gibberellin
- C. ABA
- D. Cytokinin

Answer: C

Explanation: Absciscic acid (ABA) maintains seed dormancy. Its breakdown allows germination to begin.

Q11. Match the plant hormones in Column I with their major functions in Column II:

Column I

Column II

- | | |
|----------------|--------------------------------|
| A. Auxin | 1. Bolting in cabbage |
| B. Gibberellin | 2. Cell elongation and rooting |
| C. Cytokinin | 3. Delays senescence |
| D. ABA | 4. Induces seed dormancy |

Options:

- A. A-2, B-1, C-3, D-4 ☒
- B. A-1, B-2, C-3, D-4
- C. A-2, B-3, C-4, D-1
- D. A-4, B-2, C-1, D-3

Answer: A

Explanation:

Auxin → cell elongation/rooting,

Gibberellin → bolting,

Cytokinin → delays senescence,

ABA → induces dormancy.

Q12. The most abundant natural auxin found in plants is:

- A. 2,4-D
- B. Indole-3-butyric acid (IBA)
- C. Indole-3-acetic acid (IAA)
- D. Naphthaleneacetic acid (NAA)

Answer: C

Explanation: IAA (Indole-3-acetic acid) is the main natural auxin found in higher plants.

Q13. Which hormone promotes parthenocarpy?

- A. Cytokinin
- B. Gibberellin
- C. ABA
- D. Ethylene

Answer: B

Explanation: Gibberellins promote parthenocarpy, i.e., fruit development without fertilization.

Q14. Seed germination in cereals is enhanced by:

- A. Auxin
- B. ABA
- C. Gibberellin
- D. Ethylene

Answer: C

Explanation: Gibberellins stimulate the synthesis of amylase during germination, especially in cereal grains.

Q15. Assertion (A): ABA promotes dormancy in seeds.

Reason (R): ABA increases water absorption in dormant seeds.

- A. Both A and R are true, and R is the correct explanation of A
- B. Both A and R are true, but R is not the correct explanation of A
- C. A is true, R is false ☒
- D. A is false, R is true

Answer: C

Explanation: ABA does promote dormancy, but it reduces water uptake, not increases it.

Q16. Which of the following is a gaseous plant hormone?

- A. Ethylene ☒
- B. Cytokinin
- C. Auxin
- D. Gibberellin

Answer: A

Explanation: Ethylene is the only gaseous hormone in plants.

Q17. Apical dominance is caused by:

- A. ABA
- B. Gibberellin
- C. Ethylene
- D. Auxin

Answer: D

Explanation: Auxin produced at the apical bud suppresses lateral bud growth — known as apical dominance.

Q18. Which PGR helps in breaking seed dormancy in barley?

- A. Cytokinin
- B. ABA
- C. Gibberellin ☒
- D. Ethylene

Answer: C

Explanation: Gibberellins help break dormancy in barley seeds by stimulating hydrolytic enzymes.

Q19. Which hormone is involved in fruit ripening and leaf abscission?

- A. Auxin
- B. ABA
- C. Ethylene ☒
- D. Cytokinin

Answer: C

Explanation: Ethylene promotes fruit ripening, senescence, and abscission of leaves and fruits.

Q20. Which of the following is a synthetic auxin?

- A. IAA
- B. GA3
- C. 2,4-D ☒
- D. Zeatin

Answer: C

Explanation: 2,4-D is a synthetic auxin used as a herbicide.

Q21. Which of the following hormones is inhibitory in action?

- A. Gibberellin

- B. Cytokinin
- C. Auxin
- D. Absciscic acid

Answer: D

Explanation: ABA acts as a stress hormone and inhibits seed germination, growth, and other metabolic activities.

Q22. Which phase of the growth curve represents a rapid increase in growth rate?

- A. Lag phase
- B. Log phase ☒
- C. Stationary phase
- D. Senescence phase

Answer: B

Explanation: The log (exponential) phase shows a steep rise due to maximum metabolic activity and cell division.

Q23. A student observed the elongation of a pea stem when treated with a growth regulator. The hormone likely used was:

- A. Cytokinin
- B. Gibberellin ☒
- C. ABA
- D. Ethylene

Answer: B

Explanation: Gibberellins promote stem elongation in intact plants, particularly in internodal regions.

Q24. Which of the following best describes “plasticity” in plants?

- A. Permanent genetic variation
- B. Ability to withstand pathogens
- C. Ability to modify growth in response to environment ☒
- D. Turgor-dependent growth

Answer: C

Explanation: Plasticity is the plant's ability to change form/structure based on environmental cues (e.g., heterophylly).

Q25. Match the following hormones with their specific uses:

Hormone	Use/Application
A. Cytokinin	1. Malting in brewing industry
B. Gibberellin	2. Delay leaf senescence
C. Auxin	3. Weed control in cereal crops
D. Ethylene	4. Fruit ripening

Options:

- A. A-2, B-1, C-3, D-4 ☒
- B. A-3, B-1, C-4, D-2
- C. A-1, B-2, C-3, D-4
- D. A-2, B-4, C-1, D-3

Answer: A

Explanation:

Cytokinin → delay senescence

Gibberellin → used in malting (stimulates enzymes)

Auxin (2,4-D) → herbicide for dicots in cereal crops

Ethylene → fruit ripening

Q26. Which pair of PGRs have antagonistic effects on seed dormancy and germination?

- A. Auxin and cytokinin
- B. Gibberellin and ABA ☒
- C. Ethylene and cytokinin
- D. Auxin and gibberellin

Answer: B

Explanation:

Gibberellin breaks dormancy and promotes germination

ABA promotes dormancy

Q27. Which hormone is responsible for epinasty (downward bending of leaves)?

- A. Auxin
- B. Gibberellin
- C. Cytokinin
- D. Ethylene ☒

Answer: D

Explanation: Ethylene causes epinasty, commonly seen in senescing leaves.

Q28. Which of the following is incorrect regarding plant hormones?

- A. Cytokinins promote cell division
- B. Gibberellins induce bolting
- C. Auxin promotes abscission ☒
- D. ABA induces seed dormancy

Answer: C

Explanation: Auxins prevent abscission; ethylene promotes it. Hence, the statement is incorrect.

Q29. Which of the following is not a function of cytokinins?

- A. Delay leaf senescence
- B. Promote cell division
- C. Promote fruit ripening ☒
- D. Promote lateral shoot formation

Answer: C

Explanation: Ethylene, not cytokinin, promotes fruit ripening.

Q30. Assertion (A): Gibberellins are used to increase sugar content in sugarcane.

Reason (R): Gibberellins promote elongation of sugarcane internodes.

- A. Both A and R are true, and R is the correct explanation ☒
- B. Both A and R are true, but R is not the correct explanation
- C. A is true, R is false
- D. A is false, R is true

Answer: A

Explanation: Gibberellins elongate internodes, increasing sugarcane length and sugar content.

Q31. Which of the following plant hormones is known to stimulate femaleness in flowers?

- A. Auxin
- B. Cytokinin
- C. Gibberellin
- D. Ethylene ☒

Answer: D

Explanation: Ethylene promotes femaleness in flowers in monoecious plants like cucumber.

Q32. Gibberellins are applied to sugarcane to:

- A. Induce seed germination
- B. Increase internode length ☒
- C. Promote flowering
- D. Reduce apical dominance

Answer: B

Explanation: Gibberellins elongate internodes, thereby increasing sugar yield in sugarcane.

Q33. Which one of the following is a synthetic auxin?

- A. IAA
- B. IBA
- C. NAA ☒
- D. GA₃

Answer: C

Explanation: NAA (naphthalene acetic acid) is a synthetic auxin used in agriculture and horticulture.

Q34. Which hormone can be used to break seed dormancy?

- A. ABA
- B. Cytokinin
- C. Gibberellin ☒
- D. Ethylene

Answer: C

Explanation: Gibberellins activate hydrolytic enzymes like amylase, aiding in germination.

Q35. Which of the following statements about ethylene is incorrect?

- A. Promotes fruit ripening
- B. Promotes abscission
- C. Delays senescence ☒
- D. Involved in stress responses

Answer: C

Explanation: Ethylene actually accelerates senescence, not delays it.

Q36. Match the following PGRs with their associated physiological responses:

Plant Hormone Physiological Effect

- | | |
|--------------|----------------------|
| A. Auxin | 1. Apical dominance |
| B. Cytokinin | 2. Delays senescence |
| C. ABA | 3. Promotes dormancy |
| D. Ethylene | 4. Triple response |

Options:

- A. A-1, B-2, C-3, D-4 ☒
- B. A-4, B-2, C-3, D-1
- C. A-2, B-3, C-1, D-4
- D. A-3, B-1, C-2, D-4

Answer: A

Explanation:

Auxin → apical dominance

Cytokinin → delays senescence

ABA → dormancy

Ethylene → triple response

Q37. Assertion (A): Auxin is responsible for apical dominance.

Reason (R): Auxin inhibits the growth of lateral buds.

- A. Both A and R are true and R is the correct explanation ☒
- B. Both A and R are true but R is not the correct explanation
- C. A is true but R is false
- D. Both A and R are false

Answer: A

Explanation: Auxin from the apex suppresses lateral bud growth, leading to apical dominance.

Q38. Which of the following is not associated with germination?

- A. Water uptake
- B. Resumption of embryo growth
- C. Synthesis of abscisic acid ☒
- D. Mobilization of stored food

Answer: C

Explanation: ABA promotes dormancy, not germination.

Q39. Which combination of hormones promotes cell division most effectively?

- A. Auxin and ABA
- B. Cytokinin and auxin ☒
- C. Gibberellin and ethylene

D. ABA and ethylene

Answer: B

Explanation: Cytokinin and auxin together promote active cell division in plant tissues.

Q40. Select the correct statement:

- A. Cytokinin promotes seed dormancy
- B. Auxin stimulates abscission
- C. Gibberellin induces parthenocarp ☒
- D. Ethylene inhibits root initiation

Answer: C

Explanation: Gibberellin can induce seedless fruit formation without fertilization (parthenocarp).

Q41. Which plant hormone is least involved in the seed germination process?

- A. Gibberellin
- B. Absciscic acid ☒
- C. Ethylene
- D. Cytokinin

Answer: B

Explanation: ABA inhibits germination by preventing enzyme production and metabolic activity.

Q42. Which of the following hormones promotes the triple response?

- A. Auxin
- B. Gibberellin
- C. Ethylene ☒
- D. ABA

Answer: C

Explanation: Triple response includes stem thickening, reduced elongation, and horizontal growth — all ethylene effects.

Q43. Which statement about plant growth is incorrect?

- A. Growth is irreversible
- B. Growth is intrinsic
- C. Cell division is not required ☒
- D. Growth involves metabolic energy

Answer: C

Explanation: Growth requires cell division — hence the statement is incorrect.

Q44. Which plant hormone is used to promote rooting in stem cuttings?

- A. Cytokinin
- B. Auxin ☒
- C. Gibberellin
- D. Ethylene

Answer: B

Explanation: Auxins promote adventitious root formation in stem cuttings.

Q45. Assertion (A): Absciscic acid acts as a stress hormone.

Reason (R): It helps close stomata during water stress.

- A. Both A and R are true and R is the correct explanation ☒
- B. Both A and R are true but R is not the correct explanation
- C. A is true but R is false
- D. Both A and R are false

Answer: A

Explanation: ABA signals stomatal closure during drought to reduce water loss, acting as a stress hormone.