BIOLOGY

NEET & AIIMS

PLANT GROWTH AND DEVELOPMENT

Example

1. The swelling of a piece of wood occurs when placed in water. Would you describe this as growth? Explain it.

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2. What is an open form of growth ?

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3. Which type of meristems are responsible for primary growth ?

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4. Write two parameters with the help of which growth can be measured.

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5. Where are the cells of elongation phase are present in the plant?

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6. Write the expression for arithmetic growth.

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7. What do you mean by lag phase?

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8. Which formula is used to calculate the relative growth rate of plants?

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9. Write two essential factors which influence the rate of growth.

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10. How is chlorenchyma formed?

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11. Define redifferentiation.

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12. Give an example of plasticity.

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13. Write any intrinsic factor influences the development of a plant

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14. Name the phytohormone which is a derivative of carotenoids

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15. Define abscission.

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16. Which auxins are used in producing seedless fruits?

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17. What is the chemical nature of gibberellin?

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18. What si the effect of gibberellin on ripening of fruits?

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19. From where, the first natural cytokinin was isolated.

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20. What is the effect of cytokinin on lateral shoot growth?

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21. Who discovered that ripe organes emitted a volatile substance?

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22. What is the effect of ethylene on abscission?

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23. Which phytohormone functions as a plant growth inhibitor?

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24. What is the role of abscisic acid on abscission?

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25. Write two essential requirements for breaking the dormancy of seeds.

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26. Give two examples of long day plants.

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Try Yourself

1. Name the cells which have the capacity of self-prepetuation

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2. Write name of any two permanent tissues.

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3. What increases in plants during secondary growth?

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4. Which meristems are responsible for secondary growth in plants?

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5. Which parameter is used to determine the growth of flat organs like leaves?

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6. Name three phase of growth.

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7. Which phase of growth is also known as phase of cell division?

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8. What is the structural constituent of cell wall of meristematic cell?

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9. What the size of cells of elongation phase increases?

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10. What happens to the growth of cells after differentiation?

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11. Which type of curve is obtained for bacterial cells in culture?

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12. $L_1 = L_0 + rt$. What does `L_(0) represent in the given expression?

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13. What do you mean by stationary phase?

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14. Write the mathmatical expression for geometrical growth.

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15. What are the two ways by which quantitative comparision between the growth of living system can be made?

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16. A leaf having $10cm^2$ surface area grows $5cm^2$ per day. Calculate its relative growth rate

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17. What happens to the growth roots when these are present in water logged condition?

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18. Name the abiotic factor which is not essential for early growth of the plant but growth cannot be sustained in its absence?

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19. Formation of root hairs from apical meristem is _____.

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20. Give two examples of dedifferentiated tissue.

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21. Select the structures which are formed after differentiation. Secondary phloem, root cap, secondary xylem and trichomes.

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22. What is the similarity between growth and differentiation?

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23. What is plasticity

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24. Write any two external factors which influence the development of a plant.

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25. Name a phytohormone which is gaseous in nature.

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26. What do you mean by plant growth inhbitors?

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27. Give an example of plant growth promoter.

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28. What are two types of auxin?

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29. What is the role of auxin on abscission of young leaves?

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30. Which auxins are used in induce root formation on stem cuttings?

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31. Expand GA

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32. Which fungus causes the disease known as foolish seeding?

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33. Among $GA_1, GA_2 \text{and} GA_3$ which one is throughly studied form?

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34. Which phytohormone is used to increase the size of the apple?

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35. Name the synthetic form of cytokinin.

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36. Name the natural cytokinin obtained from maize kernels.

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37. How cytokinin works opposite to auxin?

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38. Mobilization of nutrients help cytokinin in delaying _____.

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39. What si the effect of ethylene on

(a) Transverse growth

(b) Longitudinal growth

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40. What do you mean by respiratory climactic?

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41. Which type of phytohormone induce the development of adventitious roots and flowering in mango?

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42. What is effect of ethylene on storage organs such as rhizomes, tubers?

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43. What is the full form of ABA?

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44. Which hormone induces dormancy of buds and seeds?

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45. What happens to the leaves if concentration of ABA increases?

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46. What is the role of ABA on the germination of seed?

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47. Define germination.

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48. Write two phenomena involved in flowering process.

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49. Give two examples of short day plants.

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50. What is the site of perception of light/dark for flowering in plants?

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51. What is the main role of vernalisation in plants?

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52. Name any two food plants which have winter and spring varieties.

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Exercise

1. Which of the following statement for plant growth is incorrect?

A. It is localised

B. It is open ended

C. It is indeterminate

D. It does not involve increase in number of parts

Answer: D

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2. Optimum temperature required for the proper growth in most of the plants is

A. $30 - 45^{\circ} C$

B. $10 - 20^{\circ} C$

C. $28 - 30^{\circ} C$

D. $0 - 10^{\circ} C$

Answer: C

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3. Find odd one w.r.t. tissues developed by the process of redifferentiation

A. Secondary cortex

B. Secondary xylem

C. Phellem

D. Phellogen

Answer: D

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4. Which of the given plant shows plasticity in response to its prevailing environment?

A. Larkspur

B. Buttercup

C. Cotton

D. Coriander

Answer: B

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5. Who performed the experiments using canary grass to demonstrate the curvature of tip?

A. E.kurosawa

B. F.skoog

C. Went

D. Darwin

Answer: D

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6. Mark the odd one (w.r.t. synthetic auxin)

A. IAA

B. NAA

C. 2, 4-D

D. 2, 4, 5-T

Answer: A

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7. During differentiation of xylem

A. End walls are lost in tracheids

B. Loss of protoplasm occurs in vessels

C. Lignified thikening develop in tracheary elements

D. More than one option is correct

Answer: D

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8. 2, 4-D is

A. Widely used to kill monocots

B. Effective weedicides against broad leaved plants

C. Used to prevent lodging and root initiation

D. Used to promote flowering in pineapple and mango

Answer: B

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9. Select an incorrect statement

A. Auxin promotes xylem differentiation

B. NAA is used to overcome and apical dominance

C. Auxin help to prevent fruit and leaf drop at early stages

D. Auxin prevent lodging of cereals

Answer: B

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10. Auxins

A. Were first isolated in agar by paal

B. Are synthesised using tryptophan as precursor

C. Are found always as bound with amines

D. Are synthesised in shoot apices only

Answer: B

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

A. GA_3

B. Ethylene

C. Cytokinin

D. Auxin

Answer: A

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12. Induction of α-amylase activities in barley endosperm is a bioassay of

A. Auxin

B. GA_3

C. Cytokinin

D. ABA

Answer: B

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13. Foolish seeding disease is caused by a fungus. This study helped in discovery of

A. Gibberellin

B. Cytokinin

C. ABA

D. Auxin

Answer: A

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14. Intermodal elongation in sugarcane stem is promoted by

A. Gibberellin

B. Cytokinin

C. Auxin

D. ABA

Answer: A

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15. Select an incorrect match

A. ABA - Violaxanthin

B. Ethylene - Methionine

C. GA_3 - Acetyl CoA

D. Cytokinin - terpenes

Answer: D

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16. Cytokinin helps

A. To retain chlorophyll

B. In promoting cell division

C. In overcoming apical dominance

D. More than one option is correct

Answer: D

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17. Shoot bud formation is tissue culture is promoted by

A. High auxin : Low Cytokinin

B. Low Auxin : High Cytokinin

C. Auxin : Sucrose

D. GA_3 : Cytokinin

Answer: B

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18. Which of the following chemicals is/are derived from RNA?

A. Kinetic

B. IAA

C. Zeatin

D. More than one option is correct

Answer: D

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19. Fruit ripening is promoted by the hormone that

A. Promotes thinning of fruits in cherry and walnut

B. Induce parthenocarpy in tomato

C. Promotes flowering in Lemna

D. Is derived from RNA

Answer: A

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20. Abscisic acid is useful in

A. Cell division

B. Seed development

C. Germination of peanut seeds

D. Increasing length of stalks in grapes

Answer: B

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21. Dormancy in seeds may be due to presence of certain chemicals like

A. Phenolic acid

B. Zeatin

C. NAA

D. Amylase

Answer: A

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22. Select a method of breaking seed dormancy in which after ripening treatment is given at low temperature $(0 - 10^{\circ} C)$ in the presence of O_2.

A. Scarification

B. Stratifiaction

C. Vernalisation

D. Photoperiodism

Answer: B

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23. Vivparous type of speed germination is found in

A. Sonneratia

B. Rhizophora

C. Oryza sativa

D. Both 1 & 2

Answer: D

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24. What is meant by vivapary in plants?

A. Seed germination with subterranean cotyledons

B. Seed germination with epiterranean cotyledons

C. Fruit development without pollination

D. Seed germination inside fruit, while the fruit is still attached to plant

Answer: D

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25. Phytochrome is responsible for

A. Flowering

B. Seed germination

C. Transpiration

D. Both 1 & 2

Answer: D

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26. Which of the following plants do not show any correlation between exposure to light duration and induction of flowering response?

A. Long day plant

B. Day neutral plant

C. Short day plant

D. All of these

Answer: B

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27. Site of perception of light/dark duration is/are

A. Shoot apex

B. Root Apex

C. Permanent tissue

D. More than one option is correct

Answer: C

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28. Which of the following pair is incorrectly matched?

A. Tomato - Day neutral plant

B. Wheat- short day plant

C. Henbane - Long day plant

D. Sugarcane - Short day plant

Answer: B

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29. WHAT IS VERNALISATION?

A. Flowering is induced only when plant is exposed to certain duration of photoperiod

B. Flowering is either quantitatively or qualitative dependent on exposour to low temperature

C. Presence of different kinds of structure in response to environment or phase of

life

D. All changes that an organism goes through during its life cycle

Answer: B

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30. Stimulus of flow temperature in vernalisation is perceived by

A. Leaves

B. Embryo of the seed

C. Flower

D. Pericarp

Answer: B

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Assignment Section A

1. Which of the following structures show unlimited growth in plants ?

A. Leaves

B. Flower

C. Fruits

D. Roots

Answer: D

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2. Growth of an organ is defined as

A. Infinite increase in size

B. Irreversible increase in size

C. Reversible increase in size

D. Infinite and reversible increase in size

Answer: B

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3. Which type of cells have the capicity of self perpetuation ?

A. Meristematic cells

B. Companion cells

C. Seive cells

D. Parenchyma cells

Answer: A

4. Plant growth is unique in being

A. Closed

B. Unlimited

C. Diffuse

D. Limited

Answer: B

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5. Increase in the girth of plant is known as/done by

A. Primary growth

B. Apical meristem

C. Intercalary meristem

D. Secondary growth

Answer: D

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6. Examples of lateral meristems are

A. Phellogen and collenchyma

B. Vascular cambium and phellen

C. Vascular cambium and cork cambium

D. Xylem and cork cambium

Answer: C

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7. Which parameter is used to determine the growth of flat organs like leaves?

A. Increase in dry weight

B. Increase in cell size

C. Increase in surface area

D. Increase in length

Answer: C

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8. Which of the following is difficult to measure directly?

A. Increase in protoplasm content

B. Increase in surface area

C. Increase in dry weight

D. Increase in volume

Answer: A

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9. Deposition of new materials inside the cell wall of cells starts in

A. Meristematic phase

B. Reproductive phase

C. Maturation phase

D. Elongation phase

Answer: D

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10. Which phase of a sigmoid curve explains the initial phase of growth when growth rate is very slow?

A. Log phase

B. Lag phase

C. Stationary phase

D. Maturation phase

Answer: B

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11. _____ curve is obtained for cells in culture.

A. J-shaped

B. Linear

C. V-shaped

D. S-shaped

Answer: D

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12. A leaf of $20cm^2$ growth $5cm^2$ per hour and B leaf of $25cm^2$ grows $5cm^2$ per hour

The relative growth rate of leaf A and B respectively is

A. 25% and 20%

B. 20% and 25%

C. 50% and 100%

D. 25% and 50%

Answer: A

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13. What happens to the growth of roots during water logging conditions?

A. Growth is accelerated

B. Growth is inhibited

C. Growth remains constant

D. First growth is accelerated and then stops

Answer: B

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14. Which of the following is not a function of water in plants?

A. It is responsible for cell elongation

B. It maintains the turgidity of cells

C. It acts as a source of energy

D. It provides medium for enzymatic activities

Answer: C

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15. Which abiotic factor is not essential for early growth of the plant but growth is sustained only in its presence?

A. Water

B. Oxygen

C. Nutrients

D. Light

Answer: D

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16. Which factor determines the direction of movement of main root and stem?

A. Oxygen

B. Gravity

C. Temperature

D. Nutrients

Answer: B

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17. Tracheilds do not collapse under extreme tension due to the presence of

A. Strong, elastic lignocellulosic secondary cell wall

B. Thick, cellulosic primary cell wall

C. Thin, elastic, cellulosic primary cell wall

D. Thick, hard suberised secondary cell wall

Answer: A

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18. Cork, secondary cortex and secondary xylem are formed through

A. Dedifferentiation

B. Redifferentiation

C. Differentiation

D. Obliteration

Answer: B

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19. Which of the following is formed after dedifferentiation?

A. Secondary phloem

B. Secondary cortex

C. Paranchyma

D. Interfascicular vascular cambium

Answer: D

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20. Plant growth regulators (PGRs) are

A. Simple organic substance of different chemical composition

B. Complex organic substances of different chemical composition

C. Simple and complex organic substances of same chemical composition

D. Small organic substances of same chemical composition

Answer: A

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21. The ability of a plant to follow different pathways and produce different structures in response to environment is known as

A. Heterophylly

B. Plasticity

C. Effciency index

D. Vernalisation

Answer: B

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22. Heterophylly means

A. The appearance of different forms of leaves on the same plant species

B. The appearance of same form of leaves on different plants

C. The appearance of same form of flower on different plants

D. The appearance of different forms of fruits on the same plant

Answer: A

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23. Which type of phytohormone is made up of indole compounds?

A. Zeatin

B. ABA

C. Auxin

D. Gibberellins

Answer: C

24. Two synthetic auxins are

A. IAA and IBA

B. 2, 4-D and NAA

C. IAA and NAA

D. 2, 4-D and IBA

Answer: B

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25. Which phytohormone promotes falling of old leaves whereas inhibits falling of young leaves?

A. ABA

B. Cytokinin

C. GA

D. Auxin

Answer: D

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26. Which auxins are used in diluted form to produce parthenocarpic fruits?

A. IAA and IBA

B. 2, 4-D and IBA

C. NAA and GA

D. 2, 4-D and IAA

Answer: A

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27. Which of the following auxin is widely used as weedicide?

A. IAA

B. IBA

C. 2, 4-D

D. NAA

Answer: C

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28. Which of the following is not a function of gibberellic acid?

A. Bolting

B. Delayed senescence

C. Seed germination

D. Ripening

Answer: D

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29. Apical dominance is stimulated by auxin whereas it is inhibited by

A. Ethylene

B. ABA

C. Gibberellic acid

D. Cytokinin

Answer: D

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30. Phytohormones resposible for cell division in callus are ___ and _____.

A. ABA and cytokinin

B. Gibberellin and ethylene

C. Auxin and cytokinin

D. Ethylene and cytokinin

Answer: C

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31. Which phytohormoes is synthesised in ripened fruits?

A. ABA

B. Auxin

C. Cytokinin

D. Ethylene

Answer: D

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32. Which of the following is incorrect about ethylene?

A. Promotes root hair formation

B. It is natural and derivative of carotenoids

C. It increases the number of female flowers

D. It cause synchronisation of flowering and fruit set in pineapples

Answer: B

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33. Select a correct match

A. GA_3 - Early seed production in conifers

B. Cytokinin - synchronise fruit set in pineapples.

C. Auxin - Overcomes senescence.

D. Ethylene- seed maturation and development

Answer: A

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34. Which of the following phytohormone is a derivative of carotenoids?

A. Auxin

B. ABA

C. Ethylene

D. Cytokinin

Answer: B

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35. Match the following (column-I with column-II)

Column I	Column II
a. Ethephon	(i) GA
b. Terpene	(ii) Ethylene
c. Zeatin	(iii) Natural auxin
d. IAA	(iv) Cytokinin

A. a(ii), b(i), c(iii), d(iv)

B. a(ii), b(i), c(iv), d(iii)

C. a(iv), b(ii), c(iii), d(iv)

D. a(i), b(ii), c(iii), d(iv)

Answer: B

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36. Match the following (column-I with column-II)

	Column I	Column II
a.	Weedicide	(i) GA_3
b.	Bolting	(ii) Cytokinin
c.	Thinning of cotton	(iii) Ethylene
d.	Lateral shoot growth	(iv) 2, 4-D

A. a(iii), b(ii), c(iv), d(i)

B. a(iv), b(i), c(iii), d(ii)

C. a(iv), b(i), c(ii), d(iii)

D. a(iv), b(ii), c(iii), d(i)

Answer: B

37. Dormancy of seeds broken by ethylene whereas it is induce by

A. Abscisic acid

B. Auxin

C. Cytokinin

D. Gibberellic acid

Answer: A

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38. The plant hormone which closses the stomata in stressful condition is

A. Cytokinin

B. GA

C. Auxin

D. ABA

Answer: D

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39. Both ethylene and ABA are responsible for

A. Promoting the abscission of leaves and fruits

B. Inducing dormancy of seeds

C. Stimulation of apical dominance

D. Ripening

Answer: A

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40. _____ is a period when growth and development is temporarily stopped.

A. Dormancy

B. Abscission

C. Senescence

D. Vernalisation

Answer: A

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41. Florigen results in conversion of

A. Reproductive bud $\rightarrow$ vegetative bud

B. Shoot apex $\rightarrow$ Flowering bud

C. Root apex $\rightarrow$ Reproductive bud

D. Vegetative bud $\rightarrow$ Lateral shoot

Answer: B

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42. Which type of plant can blossom throughout the year ?

A. Long day plant

B. Short long day pants

C. Short day plant

D. Day neutral plant

Answer: D

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43. Which of the following is an example of short day plant?

A. Tobacco

B. Sugarbeet

C. Wheat

D. Radish

Answer: A

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44. Most of the winter flowering plants belong to

A. Short long day plants

B. Long day plants

C. Short day plant

D. Day neutral plant

Answer: C

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45. Cucumber and tomato are the examples of

A. Day neutral plants

B. Short day plants

C. Long day plants

D. Long short day plants

Answer: A

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46. The site of preception of light on plants for flowering is

A. Stems

B. Root

C. Leaves

D. Fruits

Answer: C

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47. The hormonal substance which migrates from leaves to shoot apices flowering is

A. Dormin

B. Zeatin

C. Kinetic

D. Florigen

Answer: D

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48. Some plants like sugarbeet and cabbage required low temperature for flowering. This phenomenon is called

A. Photoperiodism

B. Parthenocarpy

C. Vernalisation

D. Abscission

Answer: C

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49. Which of the following is incorrect about vernalisation?

A. It prevents precocious reproductive development

B. It is observed in winter variety of wheat

C. Flowering is stimulated by low temperature

D. It is the resting stage of seeds

Answer: D

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50. During vernalisation, the stimulus of low temperature is perceived by

A. Stem apex

B. Leaves

C. Roots

D. Bark

Answer: A

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Assignment Section B

1. Growth in plant organs is

A. Qualitative and extrinsic

B. Quantitative and intrinsic

C. Qualitative and intrinsic

D. Quantitative and extrinsic

Answer: B

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2. The growth in plants differs from growth in animals in

A. Being localized and indefinite

B. Being indefinite

C. Having indefinite life span

D. Having definite life span

Answer: A

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3. Find out the correct statements

(a) Growth in plants is internal/intrinsic and open ended

(b) Formation of cellular materials is called real or protoplasmic growth

(c) Plant growth diffused only during the early embryonic growth

A. Only a and b

B. b only

C. only b and c

D. a, b, and c

Answer: D

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4. Find out one w.r.t. differentiation

A. Loss of nucleus in seive

B. Death of protoplasm in tracheary elements

C. Callus formation

D. Lignification in vessels

Answer: C

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5. Which of the given is/are examples of differentiation?

A. Loss of nucleus and perforation in some seive tube members

B. Lignin deposition in tracheids and vessels

C. Differential wall thickening in guard cells

D. More than one option is correct

Answer: D

View Text Solution

6. If an etiolated stem could be first saturated with auxin by spraying and then exposed to a streak of light from one side it will

A. Bend towards the light

B. Bend away from light

C. Grow straight upwards

D. Be prevented from growing

Answer: A

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7. Which is not a physiological effect of auxins?

A. Cell elongation

B. Development of parthenocarpic fruits

C. Prevention of abscission of leaves and fruits

D. Reversal of genetic dwarfism

Answer: D

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8. The direction of the transport of auxins is

A. Polar in basipetal

B. Polar in acropetal

C. Through xylem

D. Through phloem

Answer: A

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9. Larkspur, Ranunculus and corton plants are similar in the presence of

A. Development heterophylly

B. Plasticity

C. Environmental heterophylly

D. Homospory

Answer: B

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10. Pruning of tea plants is done discard the effect of

A. GA_3

B. Auxin

C. Cytokinin

D. ABA

Answer: B

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11. Which of the following hormone is weak organic acid having unsaturated ring structures and derived from amino acid?

A. Cytokinin

B. Auxin

C. Gibberellins

D. Ethylene

Answer: B

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12. Specific properrty attributed to gibberellins is

A. Shortening of genetically tall plants

B. Elongation of genetically dwarf plants

C. Rooting of stem cutting

D. Promotion of leaf and fruit fall

Answer: B

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13. The plant hormone which is basic in nature?

A. Auxin

B. Gibberellins

C. Cytokinin

D. Abscisic acid

Answer: C

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14. Delay of senescence of Richmond Lang effect is a physiological effect of

A. IAA

B. CK

C. GA

D. C_2H_4

Answer: B

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15. Self life of vegetabies and out flowers can be increased by commercial application of

A. Cytokinin

B. AMO1618

C. Cyclocel

D. Phosphon-D

Answer: A

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16. The phytohormone combination which is the key regulator of cell differentiation and morphogenesis is

A. Cytokinin and IAA

B. IAA and ABA

C. IAA and GA_3

D. Cytokinin and gibberellin

Answer: A

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17. Cytokinin are said to be antiageing hormone because they delay the senescence by

A. Controlling mobilisation of resources

B. Controlling protein synthesis

C. Decreased morphogenisis and high respiration

D. Both 1 & 2

Answer: D

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18. The number of female flowers can be increased by the application of

A. IAA

B. C_2H_4

C. Ck

D. All of these

Answer: D

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19. Triple response is shown by hormone

A. Ethylene

B. CK

C. 2, 4-D

D. GA_3

Answer: A

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20. $CH_2 = CH_2$ is mainly responsible for

A. Formation of internode

B. Formation of nodes

C. Ripening of fruits

D. Formation of internodes

Answer: C

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21. The hormone which can replace the long days and low temperature requirement for flowering in some plants is

A. Gibberellin

B. Cytokinin

C. Vernalin

D. Ethylene

Answer: A

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22. Gibberellin mediate amylase formation during germination of cereal grains is inhibited by

A. Abscisic acid

B. Ethylene

C. Gibberellins

D. Cytokinins

Answer: A

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23. Select an incorrect match

A. Trytophan - Auxin

B. Methionine - Ethylene

C. tRNA - Cytokinin

D. Violaxanthin - GA_3

Answer: D

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24. Which is not true for abscisic acid?

A. Acts as antitranspirant

B. Synthesized in chloroplast from carotenoids

C. Increases stress tolerance in plants

D. Induce epinasty of leaves and flowers

Answer: D

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25. Which hormone stimulates the closure of stomata in the epidermis and increases the

tolerance of plants to various kinds of stresses?

A. ABA

B. Cytokinin

C. GA_3

D. Auxin

Answer: A

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26. Match the following (column-I with column-II)

Column I	Column II
a. Auxin	(i) Root hair formation
b. Cytokinin	(ii) Seed development
c. Ethylene	(iii) Xylem differentiation
d. ABA	(iv) Nutrient mobilisation

A. a(iv), b(ii), c(iii), d(i)

B. a(ii), b(iii), c(i), d(iv)

C. a(i), b(iii), c(ii), d(iv)

D. a(iii), b(iv), c(i), d(ii)

Answer: D

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27. Condition of suspended growth due to external environmental condition is called

A. Dormancy

B. Rest

C. Quiescence

D. All of these

Answer: C

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28. Seed dormancy in tomato seeds is due to

A. Impermeable seed coat

B. Immature embryo

C. Presence of ferulic acid in pulp

D. Abscisic acid in pulp

Answer: C

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29. Which does not happen during seed germination?

A. Emergency of radicle

B. Increase in rate of respiration

C. Hydrolysis of stored polysaccharides and proteins

D. Photosynthesis by cotyledons

Answer: D

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30. For flowering, critical dark period should always be exceeded in

A. Long day plant

B. Short day plants

C. Day neutral plants

D. All type of plants

Answer: B

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31. Which of the following statements does not characterize photoperiodism?

A. Mediated by florigen hormone

B. Conversion of shoot apex into reproductive apex

C. Red light is stimulatory in SDL, PDL and DNP for flowering

D. Photoperiodism stimulus is perceived by mature leaf

Answer: C

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32. The hypothetical 'florigen' could be released prematurely in a long day plant by exposing it to

A. Shortening light period

B. Red light during night

C. Extending dark period

D. Far red light

Answer: B

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33. All given statements are correct w.r.t. photoperiodism, except

A. Discovered by garner and allard in a variety of tobacco

B. Stimulus is received by young leaves

C. Florigen is hypothetical hormone produced in response to stimulus

D. Florigen is transported to bud through phloem

Answer: B

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34. Which of the following pairs is mismatched?

A. Triticum aestivum - LDP

B. Zea mays - DNP

C. Glycine max - SDP

D. Raphanus sativua - SLDP

Answer: D

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35. Which is not a requirment of vernalisation?

A. Aerobic condition

B. Moisture

C. Low temperature

D. Differentiated tissues

Answer: D

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Assignment Section C

1. Which of the following prevents falling of fruits

OR

Fruit and leaf drop at early stages can be prevented by the application

A. Cytokinins

B. Ethylene

C. Auxin

D. Gibberellic acid

Answer: C

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2. 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 medum to securre shoots as well as roots

A. IAA and gibberellin

B. Auxin and cytokinin

C. Auxin and abscsic acid

D. Gibberellin and abscisic acid

Answer: B

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3. Phytochrome is a

A. Flavoprotein

B. Glycoprotein

C. Lipoprotein

D. Chromoprotein

Answer: D

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4. The Avena curvature is used for bioassay of

A. Ethylene

B. ABA

C. GA_3

D. IAA

Answer: D

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5. Auxin can be bioassayed by

A. Lettuce hypocotyle elongation

B. Avena coleoptile curvature

C. potometer

D.

Answer: B

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6. The rate of growth of any organism follows

Or

Typical growth curve in plants is

A. Parabolic

B. Sigmiod

C. Linear

D. Stair - steps shaped

Answer: B

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

A. Auxin accumulated on the shaded side stimulating greater cell elongation three

B. Green plants need light to perform photosysnthesis

C. Green plants seek light because they are phototropic

D. Light stimulates plant cells on the lighted side to grow faster

Answer: A

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8. A few normal seedlingd of tomato were kept in a dark room. After a few days were found to have become white coloured like albinos. Ehich of the following terms will you use to describe them

A. Mutated

B. Embolised

C. Etiolated

D. Defoliated

Answer: C

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9. Which one o f the following plant hormone (phytomone) Is know as a stress hormone

A. Abscisic acid

B. Ethylene

C. GA_3

D. Indole acetic acid

Answer: A

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10. Dr. F. Went noted that is 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 sighifcance is this exeriment

A. It made possible the isolation and exact identification of auxin

B. It is the basis for quantitative determination of small amounts of growth promoting substances

C. It supports the hypothesis that IAA is auxin

D. It demonstrated polar movement of auxins

Answer: B

11. During seed germination, its stored food is mobilised by

A. Cytokinin

B. ABA

C. Gibberellins

D. Ethylene

Answer: C

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12. Through their effect on plant growth regiulators, what do the temperature and light control in the plants

A. Apical dominance

B. Flowering

C. Closure of stomata

D. Fruit elongation

Answer: B

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

A. Zeatin

B. Ethylene

C. ABA

D. IAA

Answer: C

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14. Vernalisation simulates flowering in

A. Zamikand

B. Turmeric

C. Carrot

D. Ginger

Answer: C

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15. Photoperiodism was first characterized in

A. Cotton

B. Tobacco

C. Potato

D. Tomato

Answer: B

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16. Phototropic curvature is result of uneven distribution of

A. Auxin

B. Gibberellin

C. Phytochrome

D. Cytokinin

Answer: A

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17. Coiling of graden pea tendrils around any support is an example of

A. Thermotaxis

B. Thigmotaxis

C. Thigmonasty

D. Thigmotropism

Answer: D

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18. One of the commonly used plant growth hormone in tea plantations is

A. Ethylene

B. Abscisic acid

C. Zeatin

D. Indole-3-acetic acid

Answer: C

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19. Root development is promoted by

A. Abscisic acid

B. Auxin

C. Gibberellins

D. Ethylene

Answer: D

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20. One of the synthetic auxin is

A. IAA

B. GA

C. IBA

D. NAA

Answer: D

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21. Which one of the following acids is a derivative of carotenoids?

A. Indole-3-acetic acid

B. Gibberellic acid

C. Abscisic acid

D. Indole butyric acid

Answer: C

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22. Senescence as an active devlopmental cellular process in the growth and functioning of a flowering plant, is indicated in

A. Floral parts

B. Vessels and tracheild differenciation

C. Leaf abscission

D. Annual plants

Answer: C

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23. Importance of day length in flowering of plants was first shown in

A. Petunia

B. Lemna

C. Tobacco

D. Cotton

Answer: C

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24. Foolish Seedling disease of rice led to the discovery of

A. IAA

B. GA

C. ABA

D. 2,4-D

Answer: B

 Watch Video Solution

25. Opening of floral buds is

A. Autonomic movement of growth

B. Autonomic movement of locomotion

C. Autonomic movement of variation

D. Paratonic movement of growth

Answer: A

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26. Which one of the following pairs, is not correctly matched?

A. IAA - Cell wall elongation

B. Abscisic acid - Stomata closure

C. Gibberellic acid - Leaf fall

D. Cytokinin - Cell division

Answer: C

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27. The wavelength of light absorbed by Pr form of phytochrome is

A. 660 nm

B. 720 nm

C. 620 nm

D. 640 nm

Answer: A

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28. How does pruning help in making the hedge dense

A. It induces the differentiation of new shoots from the rootstock

B. It frees axillary buds from apical dominance

C. The apical shoot grows faster after purning

D. It releases wound hormones

Answer: B

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29. Treatment of seed at low temperature under moist conditions to break its dormancy is called

A. Scarification

B. Vernalisation

C. Chelation

D. Stratification

Answer: D

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

A. α - amylase

B. Lipase

C. Protease

D. Invertase

Answer: A

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31. Farmers in a particular region were concerned that pre-mature yellowing of leaves of a pulse crop might caused decrease in the yield. Which treatment could be most be most beneficial to obtain maximum seed yield?

A. Application of iron and magnesium to promote synthesis of chlorophyll

B. Frequent irrigation of the crop

C. Treatment of the plants with cytokinin along with a small does of nitrogenous fertilizer

D. Removal of all yellow leaves and spraying the remaining green leaves with 2, 4, 5-trichlorophenoxy acetic acid

Answer: C

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32. The ability of the venus fly trap of capture insects is due to

A. Chemical stimulation by the prey

B. A passive process requiring no special ability on the part of the plant

C. Specialized "muscle - like " cells

D. Rapid turgo pressure changes

Answer: D

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33. The pineapple which under natural conditions is diffcuit to blossom has been made to produce friuts throghout the year by application of

A. IAA, IBA

B. NAA, 2,4-D

C. Phenyl acetic aicid

D. Cytokinin

Answer: B

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34. If the growing plant is decapitated, then

A. Its growth stops

B. Leaves become yellow and fall down

C. Axillary buds are inactivated

D. Axillary buds are activated

Answer: D

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35. The movement of auxin is largely

A. Centripetal

B. Basipetal

C. Acropetal

D. Both 1 & 3

Answer: B

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36. 2, 4-D is an effective

A. Rodenticide

B. Wormicide

C. Fungicide

D. Weedicide

Answer: D

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37. Which one among the following chemical is wued for causing defoliation of for causing defoliation of forest trees

A. Malic hydrazide

B. 2, 4-D

C. AMO-1618

D. Phosphon-D

Answer: B

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38. If the apical bud has been removed then we observe:

A. More lateral branches

B. More adventitious buds

C. Plant growth stops

D. Flowering stops

Answer: A

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39. Which one prevents premature fall of fruit

?

A. GA_3

B. NAA

C. Ethylene

D. Zeatin

Answer: B

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40. Plants deficient of element zinc, show its effect on the biosynthesis of plant growth hormone

A. Auxin

B. Cytokinin

C. Ethylene

D. Abscissic acid

Answer: A

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41. Maximum growth rate occur in

A. Stationary phase

B. Senescent phase

C. lag phase

D. Exponential phase

Answer: D

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42. Gibberellin acid induce flower

A. In short day plants under long day conditions

B. In day neutral plants under dark conditions

C. In some gymnospermic plants only

D. In long day plants under short day conditions

Answer: D

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43. Which breaks dormancy of potato tuber : -

A. Gibberellin

B. IAA

C. ABA

D. Zeatin

Answer: A

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44. Cell elongation in internodal regions of the green plants takes place due to

A. Indole acetic acid

B. Cytokinin

C. Gibberellins

D. Ethyelne

Answer: C

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45. Natural cytokinins are synthesised in tissues that are

A. Senescent

B. Dividing rapidly

C. Storing food material

D. Differentiating

Answer: B

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46. Differention of shoot is controlled by

A. High auxin : cytokinin ratio

B. High cytokinin : auxin ratio

C. High gibberellin : auxin ratio

D. High gibberellin : cytokinin ratio

Answer: B

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47. Coconut milk factor is

A. Auxin

B. A Gibberellin

C. Abscisic acid

D. Cytokinin

Answer: D

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48. Which combination of gases is suitable for fruit ripending

A. 80% CH_4 and 20% CO_2

B. 80% CO_2 and 20% O_2

C. 80% C_2H_4 and 20% CO_2

D. 80% CO_2 and 20% CH_2

Answer: C

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49. Which hormone is responsble for fruit ripening:

A. Ethylene

B. Auxins

C. Ethyl chloride

D. Cytokinin

Answer: A

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50. ABA is involved in

A. Shoot elongation

B. Increased cell division

C. Dormancy of seeds

D. Root elongation

Answer: C

51. Hormone responsible for senescence

A. ABA

B. Auxin

C. GA

D. Cytokinin

Answer: A

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52. By which action a seed coat becomes permeable to water?

A. Scarification

B. Stratifiaction

C. Vernalisation

D. All of these

Answer: A

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53. The response of different organisms to environmental rhythms of light and darkness is called:

A. Vernalisation

B. Photoperiodism

C. Phototaxis

D. Phototropism

Answer: B

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54. Which plant is LDP : -

A. Tobacco

B. Glycine max

C. Mirabilis jalapa

D. Spinach

Answer: D

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55. Protienaceous pigment which is the centre of the activities concerned with light is

A. Phytochrome

B. Chlorophyll

C. Anthocyanin

D. Carotenoids

Answer: A

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56. One set of a plant was grown at 12 hours day and 12 hours night period cycle and it flowered while in the other set night period cycles and it flowered while in the other set night phase was interrupted by flash of ligth and did not produce flower. Under which one of the following categories will you place this plant

A. Long day

B. Darkness neutral

C. Day neutral

D. Short day

Answer: D

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57. What will be effect on the phytochrome in plant subjected to continuous red light?

A. Phytochrome synthesis will increase

B. Level of photochrome will decrease

C. Photochrome will be destroyed

D. First 2 and then 1

Answer: D

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58. The pigment that absorbs red and far red light in plants is

A. Phytochrome

B. Carotene

C. Xanthrophyll

D. Cytochrome

Answer: A

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59. phytochrome becomes active in

A. Red light

B. Green light

C. Blue light

D. None of these

Answer: A

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60. The viability of seeds is tested by

A. Safranin

B. 2,6 dichlorophenol indophenols

C. 2,3,5 triphenyl tetrazolium chloride

D. DMSO

Answer: C

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61. The twinning of tendrils around a support is a good example of

A. Photoperiodism

B. Chemotropism

C. Nastic movements

D. Thigmotropism

Answer: D

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62. The closing and opening of the leaves of Mimosa pudica is due to

A. Seismonastic movement

B. Chemonastic movement

C. Thermonastic movement

D. Hydrotropic movement

Answer: A

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Assignment Section D

1. Assertion: If a plant is kept horizontally, auxin accumulates on the lower surface.

Reason: The displacement of statoliths and

other cell organelles to lower surface modifies the translocation patern of auxins.

A. If Both Assertion & Reason are true and the reason is the correct explanation of the assertion, then mark (1)

B. If both Assertion and reason are true but the reason is not the correct explanation of the assertion, then mark (2).

C. If Assertion is true statement but reason is false, then mark (3)

D. If both Assertion and reason are false statements, then mark (4).

Answer: A

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2. Assertion: Only bud and embryo can be vernalized.

Reason: Vernalization requires dividing cells.

A. If Both Assertion & Reason are true and the reason is the correct explanation of the assertion, then mark (1)

B. If both Assertion and reason are true but the reason is not the correct explanation of the assertion, then mark (2).

C. If Assertion is true statement but reason is false, then mark (3)

D. If both Assertion and reason are false statements, then mark (4).

Answer: A

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3. Assertion: Phytochrome, a protein, has regulatory functions.

Reason: Various morphogenetic processes are regulated by it.

A. If Both Assertion & Reason are true and the reason is the correct explanation of the assertion, then mark (1)

B. If both Assertion and reason are true but the reason is not the correct explanation of the assertion, then mark (2).

C. If Assertion is true statement but reason is false, then mark (3)

D. If both Assertion and reason are false statements, then mark (4).

Answer: A

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4. Assertion: Auxin treatment cause acidification of cell wall and helps in cell elongation.

Reason: Loosening of cell wall-ageing hormones.

A. If Both Assertion & Reason are true and the reason is the correct explanation of the assertion, then mark (1)

B. If both Assertion and reason are true but the reason is not the correct explanation of the assertion, then mark (2).

C. If Assertion is true statement but reason is false, then mark (3)

D. If both Assertion and reason are false statements, then mark (4).

Answer: A

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5. Assertion: Cytokinins are anti-ageing hormones.

Reason: They cause changes in osmotic potential by increasing the volume of mature cells.

A. If Both Assertion & Reason are true and the reason is the correct explanation of the assertion, then mark (1)

B. If both Assertion and reason are true but the reason is not the correct explanation of the assertion, then mark (2).

C. If Assertion is true statement but reason is false, then mark (3)

D. If both Assertion and reason are false statements, then mark (4).

Answer: B

6. Assertion : Gibberellic acid increases the yield of malt from barley grain.

Reason :Gibberellins stimulate the synthesis of amylase, protease and other hydrolytic enzyme for mobilisation of reserve food.

A. If Both Assertion & Reason are true and the reason is the correct explanation of the assertion, then mark (1)

B. If both Assertion and reason are true but the reason is not the correct explanation of the assertion, then mark (2).

C. If Assertion is true statement but reason is false, then mark (3)

D. If both Assertion and reason are false statements, then mark (4).

Answer: A

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7. Assertion : 2, 4-D is widely used by farmers in agricultural and horticultural practices.

Reason : Flowering in most plants can be intiated by using high concerntration of auxin.

A. If Both Assertion & Reason are true and the reason is the correct explanation of the assertion, then mark (1)

B. If both Assertion and reason are true but the reason is not the correct explanation of the assertion, then mark (2).

C. If Assertion is true statement but reason is false, then mark (3)

D. If both Assertion and reason are false statements, then mark (4).

Answer: C

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8. Assertion : Cytokinin along with the auxin are required for morphogenesis.

Reason : More cytokinin to auxin ratio promte root initiation during micropropagation.

A. If Both Assertion & Reason are true and the reason is the correct explanation of the assertion, then mark (1)

B. If both Assertion and reason are true but the reason is not the correct explanation of the assertion, then mark (2).

C. If Assertion is true statement but reason is false, then mark (3)

D. If both Assertion and reason are false statements, then mark (4).

Answer: C

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9. Assertion : Seeds do not sprout when ABA is overcome by Gibeberellins.

Reason : GA inhibits protein and RNA synthesis.

A. If Both Assertion & Reason are true and the reason is the correct explanation of the assertion, then mark (1)

B. If both Assertion and reason are true but the reason is not the correct explanation of the assertion, then mark (2).

C. If Assertion is true statement but reason is false, then mark (3)

D. If both Assertion and reason are false statements, then mark (4).

Answer: D

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10. Assertion : Soyabean and sugarbeet flower when they are exposed to a photoperiod shorter than critical period.

Reason : Most of winter flowering plants are LDP.

A. If Both Assertion & Reason are true and the reason is the correct explanation of the assertion, then mark (1)

B. If both Assertion and reason are true but the reason is not the correct explanation of the assertion, then mark (2).

C. If Assertion is true statement but reason is false, then mark (3)

D. If both Assertion and reason are false statements, then mark (4).

Answer: D