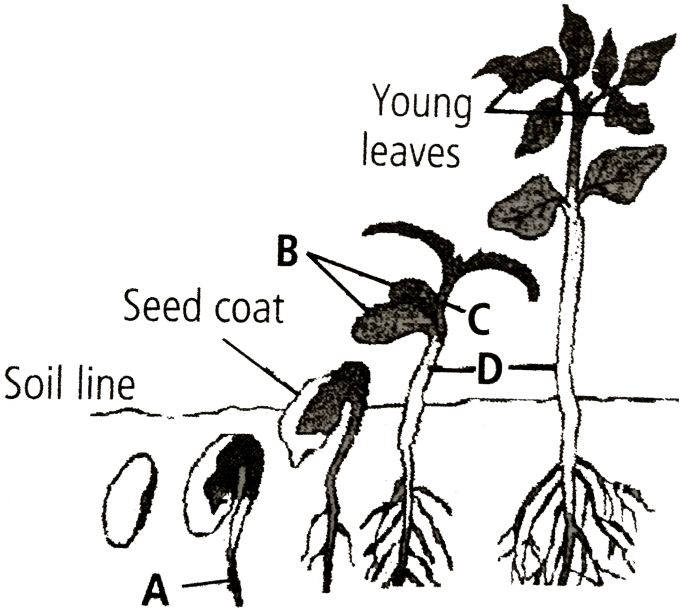
BIOLOGY

BOOKS - MTG BIOLOGY (HINGLISH)

PLANT GROWTH AND DEVELOPMENT

Plant Growth And Development

1. The given diagram shows different stages of seed germination. Identify A,B,C and D and select the correct option.



A. A Plumule B cotyledons C Epicotyl D Hypocotyl

B. A Radicle B cotyledons C Epicotyl D Hypocotyl

C. A Mesocotyl B cotyledons C Epicotyl D Hypocotyl

D. A Root hair B cotyledons C Hypocotyl D Epicotyl

Answer: B

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2. An irreversible or permanent increase in size, mass or volume of a cell, organ or organism is called as _____.

A. growth

B. differentiation

C. dedifferentitation

D. development

Answer: A

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3. Growth in plants is

A. only determinate

B. only indeterminate

C. mostly determinate

D. both determinate and indeterminate.

Answer: D

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4. Meristematic cells are characterised by

A. thin cellulosic cell walls

B. dense protoplasm

C. prominent nuclei

D. all of these

Answer: D

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5. Increased vacuolation, cell enlargement and new cell wall deposition are the characteristics of cells in____phase of growth.

A. meristematic

B. elongation

C. maturation

D. differentitation

Answer: B

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6. Vascular cambium and cork cambium are

A. lateral meristems

B. intercalary meristems

C. primary meristems

D. apical meristems.

Answer: A

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7. Increase in girth (diameter) of plant as a result of the activities of lateral meristems is called

A. primary growth

B. secondary growth

C. open form of growth

D. diffuse growth

Answer: B

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8. Secondary growth generally occurs in

A. monocots

B. dicots

C. gymnosperms

D. both (b) and (c)

Answer: D

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9. Growth at cellular level, is principally a consequence of increase in the amount of

A. protoplasm

B. DNA

C. cell wall

D. cell organelles

Answer: A

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10. Growth is maximum in zone of

A. cell elongation

B. cell division

C. cell maturation

D. all of these

Answer: A

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11. Fastest phase of S-shaped growth curve is

A. lag phase

B. log phase

C. stationary phase

D. both (a) and (b)

Answer: B

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12. Read the following statements regarding arithmetic growth and select the correct answer.

(i) Rate of growth is constant.

(ii) One daughter cell remains meristematic while the other one differentiates and matures.

(iii) Mathematical expression is $L_t = L_0 + rt$.

A. statements (i) and (ii) are correct.

B. statements (ii) and (iii) are correct

C. statements (i) and (iii) are correct

D. All statements are correct

Answer: D

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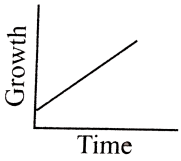
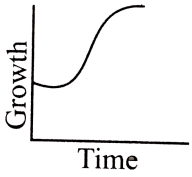
13. Which one is the correct graph for arithmetic growth?

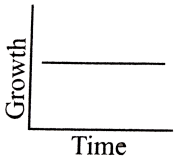
A. (a)



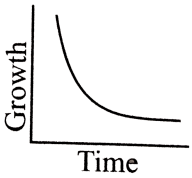
B. (b)



C. (c)



D. (d)



Answer: A

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14. Select the incorrect statement among the following.

A. Increase in growth per unit time is growth rate.

B. A sigmoid growth curve is a characteristic of most living organsims in their natural environment.

C. Rate of growth is constant during geometrical growth.

D. Exponential phase is also called as log phase.

Answer: C

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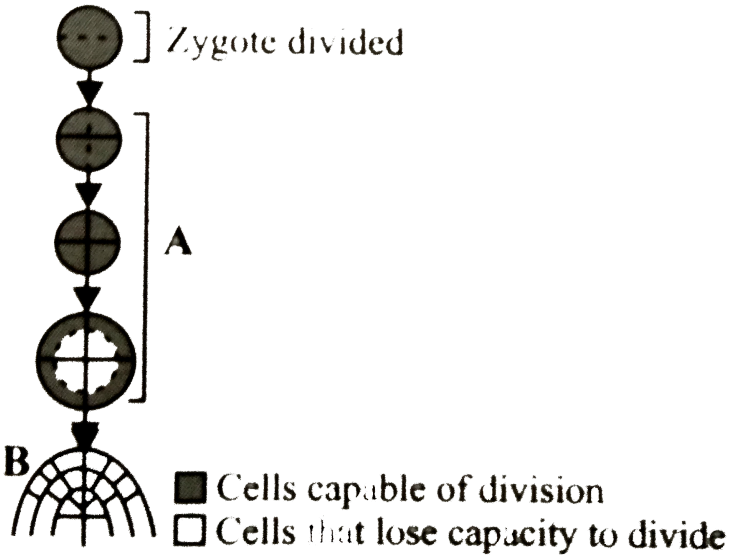
15. The given figure shows development of an embryo that undergoes two phases A and B. select the correct option regarding it.



A. A Geometric phase B Arithmetic phase

B. A Arithmetic phase B Geometric phase

C. A Arithmetic phase B Exponential phase

D. A Exponential phase B Stationary phase

Answer: A

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16. The exponential growth can be mathematically expressed as

A. $L_t = L_0 + rt$

B. $W_1 = W_0 + e^{rt}$

C. $W_1 = W_0 e^{rt}$

D. $L_t = L_0 - rt$

Answer: C

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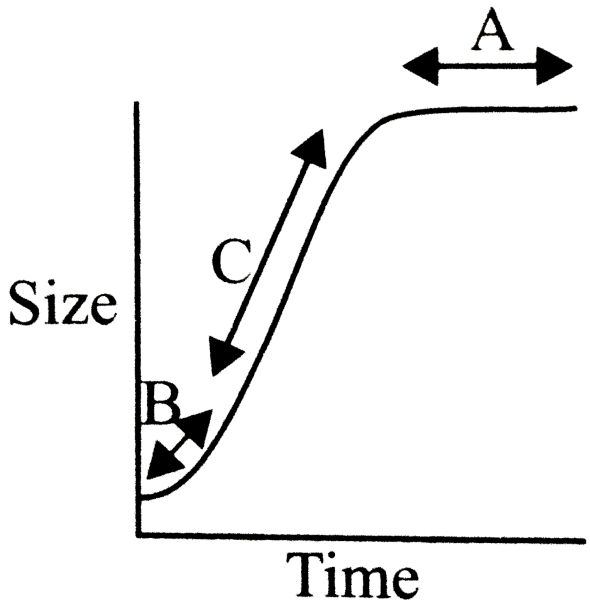
17. Given graph is drawn on the parameters of growth versus time. Here A,B and C respectively represent



A. exponential phase, log phase and steady state phase

B. steady state phase, lag phase and log phase

C. log phase, steady state phase and logarithmic phase

D. log phase, lag phase and steady state phase.

Answer: B

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18. Read the given statements and select the correct option.

(i) One marize root cell can give rise to more than 17,500 cells.

(ii) A cell in watermelon can increase in size upto 3,50,000 times.

(iii) The growth of pollen tube is measured in terms of length.

(iv) The growth of the leaf is measured in term of surface area.

A. statements (i) and (ii) are correct.

B. statements (ii) and (iii) are correct

C. statements (i) and (iii) are correct

D. statements (i), (ii),(iii) and (iv) are correct.

Answer: D

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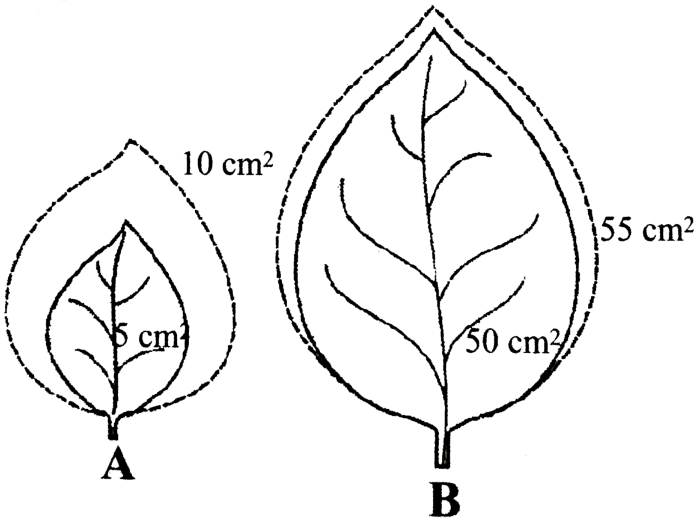
19. The given figure shows growth of two leaves over the period of one day. If $AG =$ absolute growth and RGR= relative growth rate, then select

the correct option.



A.	$AG$for leaf$A$	$RGR$for leaf$A$	$AG$for leaf$B$	$RGr$for leaf$B$
	1 %	1	2 %	2
B.	$AG$for leaf$A$	$RGR$for leaf$A$	$AG$for leaf$B$	$RGr$for leaf$B$
	100 %	5	10 %	5
C.	$AG$for leaf$A$	$RGR$for leaf$A$	$AG$for leaf$B$	$RGr$for leaf$B$
	5	100 %	5	10 %
D.	$AG$for leaf$A$	$RGR$for leaf$A$	$AG$for leaf$B$	$RGr$for leaf$B$
	5	100 %	5	100 %

Answer: C

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20. A primary root grows from 5 cm to 19 cm in a weak. Calculate the actual growth rate (AGR) and relative growth rate (RGR) over the period.

A. $\begin{matrix} AGR & RGR \\ 14cm & 2.8 \end{matrix}$

B. $\begin{matrix} AGR & RGR \\ 14cm & 3.8 \end{matrix}$

C. $\begin{matrix} AGR & RGR \\ 3.8cm & 14 \end{matrix}$

D. $\begin{matrix} AGR & RGR \\ 24cm & 2.8 \end{matrix}$

Answer: A

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21. The factors which influence growth are

A. nutrients

B. water, oxygen

C. light, temperature

D. all of these

Answer: D

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22. Cells of tracheary elements (tracheids and vessels) become dead at maturity and lose their protoplasm due to the deposition of lignocellulosic cell wall thickenings. This is an example of

A. growth

B. differentiation

C. dedifferentitation

D. redifferentiation

Answer: B

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23. Which of the following is an example of differentiation ?

A. Lignocellulosic wall thickenings of tracheids

B. Loss of nucleus, vacuolisation and end wall perofrations in sieve tube elements

C. Elongation, thickening and emptying of sclerenchyma fibers

D. All of these

Answer: D

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24. Living differentiated cells which have otherwise lost the capacity to divide, can region the power of division under certain conditions. This phenomenon is termed as

A. differentiation

B. dedifferentiation

C. redifferentitation

D. development

Answer: B

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25. The dedifferentiated cells mature to form some specific cells to perform specific functions, this is referred to as

A. differentiation

B. dedifferentiation

C. redifferentitation

D. development

Answer: C

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26. _____are the examples of tissues, formed by dedifferentiation.

A. Interfassicular cambium

B. Cork cambium

C. Both (a) and (b)

D. Tracheary elements

Answer: C

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27. Examples of tissues that are formed by redifferentiation are

A. secondary xylem

B. secondary phloem

C. cork cell

D. all of these

Answer: D

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28. If a part of pith from the stem of a plant is used as an explant and cultured on nutrient medium, which of the following processes is responsible for the formation of an undifferentiated mass of cells called callus?

A. Growth

B. Differentiation

C. Dedifferentitation

D. Redifferentiation

Answer: C

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29. _____includes all the changes that an organism undergoes during its life cycle, from seed germination to senescence.

A. Growth

B. Differntitation

C. Dedifferentitation

D. Development

Answer: D

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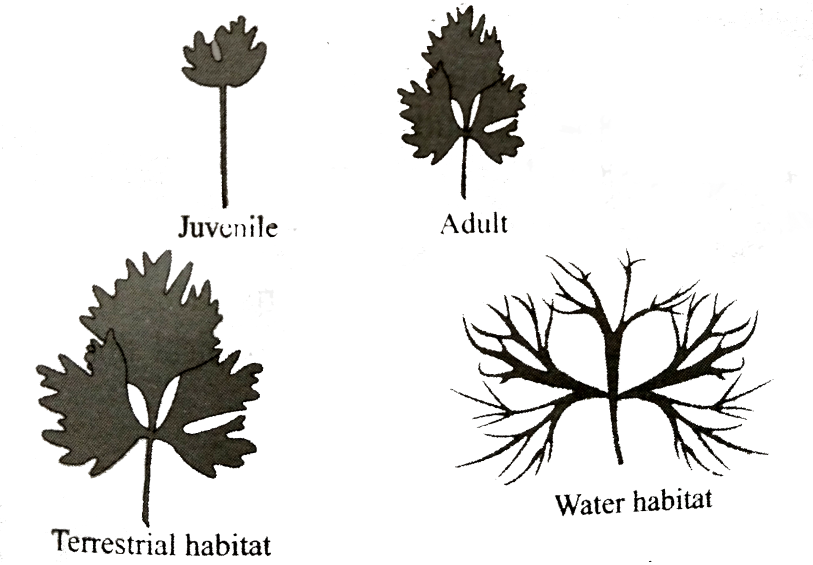
30. Different kinds of structures develop in plants in different phase of growth or in response to enviornment. This ability is called____.



A. plasticity

B. elasticity

C. heterophylly

D. differentiation

Answer: A

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31. In aquatic plant Ranunculus flabellair (buttercup), submerged leaves are highly dissected whereas the emerged leaves are broad and lobed. This is an example of

A. heterophylly

B. enviornmental plasticity

C. phenology

D. both (a) and (b)

Answer: D

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32. Intrinsic heterophylly is found in all except

A. cotton

B. enviornmental plasticity

C. cariander

D. larkspur

Answer: B

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33. Development in plants is influenced by both intrinsic and extrinsic factors. Which of the following is included under interinsic factors?

A. Growth regulators

B. Oxygen

C. Water

D. All of these

Answer: A

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34. Cytokinin are mostly

A. glucosides

B. phenolics

C. amino purines

D. organic acids

Answer: C

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35. Select the pair that consists of plant growth promoters only.

A. Auxins and cytokinins

B. Gibberellins and ABA

C. Ethylene and ABA

D. All of these

Answer: A

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36. Which of the following is both a growth promoter as well as a growth inhibitor?

A. Auxin

B. Gibberellic acid

C. ABA

D. Ethylene

Answer: D

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37. Functions of plant growth promoters and plant growth inhibitros are given here in a jumbled up manner. Select the option that correctly segregates these functions.

(i) Cell division (ii) Cell enlargement

(iii) Pattern formation (iv) Tropic growth

(v) Flowering (vi) Fruiting

(viii) Seed germination (viii) Response to wounding

(ix) Response to stresses of biotic and abiotic origin

(x) Dormancy

A.

Functions of growth promoters	functions of growth inhibitors
$(i).\ (ii).\ (vii).\ (ix)$	$(ii).\ (iv).\ (v).\ (vi).\ (viii).\ (x)$

B.

Functions of growth promoters	functions of growth inhibitors
$(viii).\ (ix).\ (x)$	$(i).\ (ii).\ (iii).\ (iv).\ (v).\ (vi).\ (vii)$

C. Functions of growth promoters $(i).(ii)(iii).(iv)(v).(vi).(vii)$ functions of growth inhibitors $(viii).(ix).(x)$

D. Functions of growth promoters $(i).(ii)(iii).(iv)(v).(vi).(vii).(ix).(x)$ functions of growth inhib $(viii)$

Answer: C

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38. Hormone involved in phototropism is

A. IA A

B. gibberellin

C. kinetin

D. 2,4-D

Answer: A

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39. Which plant hormone induces the phenomenon of photoropism in plants?

A. Auxins

B. Ethylene

C. Cytokinin

D. Gibberellin

Answer: A

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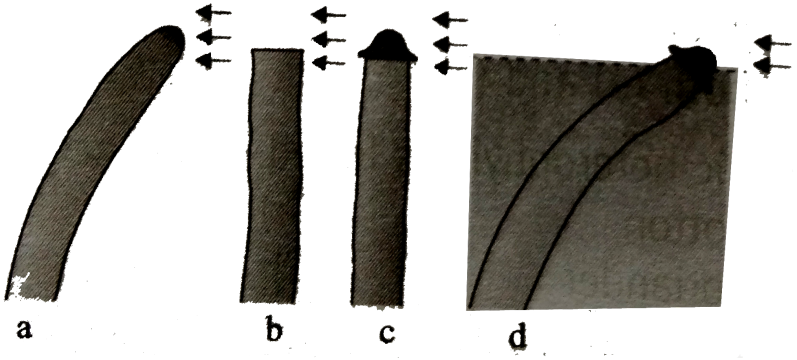
40. Avena curvature test is a bioassay for examining the activity of



A. auxins

B. gibberellins

C. cytokinin

D. ethylene

Answer: A

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41. Gibberellin was first extracted from

A. Gibberella fujikuroi

B. Gelidium

C. Gracilaria

D. Aspergillus

Answer: A

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42. Which one is paired incorrectly?

A. Auxin - Isolated from human urine

B. Zeatin - Isolated from corn kernels and coconut milk

C. Gibberellins - Isolated from fungus G. fujikori

D. Abscisic acid - Isolated from ripened oranges

Answer: D

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43. Who isolated auxins from tips of coleoptiles of oat seedings?

A. Darwin and Darwin

B. Went

C. Skoog et al.

D. Kurosawa

Answer: B

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44. High concentration of auxin is present in

A. root apex

B. stem apex

C. node

D. petiole

Answer: B

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45. Which of the following effects of auxins on plants is the basis for their commercial application?

A. Cellus formation

B. Curvature of stem

C. Induction of root formation in stem cuttings

D. Induction of shoot formation

Answer: C

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46. Which of the following hormones is used in root formation on stem cutting?

A. Kinetin

B. GA

C. ABA

D. IBA

Answer: D

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47. Select the correct statements (s) regarding auxins.

A. Auxins promote root growth only at extermely low concentrations and they inhibit root growth at higher concentrations.

B. Concentration of auxins which is inhibitroy to root growth causes initiation of adventitions roots from the nodes or basal regions of stem.

C. Auxins such as NA A and IBA are used to induce rooting in stem cuttings.

D. All of these

Answer: D

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48. Apical dominance is dicot plants is due to the presence of more____in the apical bud then in the lateral ones.

A. auxins

B. cytockinins

C. gibberellins

D. ethylene

Answer: A

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49. The term 'auxin precursor' refers to

A. raw material used in the synthesis of auxin

B. compound which inhibits the action of auxin

C. artificially synthesised auxin

D. active form of auxin

Answer: A

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50. Read the given statements and select the correct option.

(i) Darwin and Darwin (1880) found that sensation of unilateral illumination was perceived by the coleoptile tip of canary grass.

(ii) IA A is universal natural auxin, discovered by Kogi et al.

(iii) IBA is both natural and synthetic auxin.

(iv) Auxins promote the growth of lateral shoots.

A. statements (i) and (ii) are correct.

B. statements (ii) and (iii) are correct

C. Statements (i), (ii) and (iii) are correct

D. Statements (i),(ii),(iii) and (iv) are correct.

Answer: C

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51. In the process of apical dominance, lateral buds are unable to grow in the presence of apical bud. This is due to

A. less amount of auxin in apical bud

B. more amount of auxin in apical bud

C. less amount of cytokinins in lateral buds.

D. more amount of cytokinins in lateral buds.

Answer: B

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52. Decapitation i.e. removal of shoot tips in a plant usually results in

A. inactivation of lateral buds

B. growth of lateral buds

C. cessation of plant growth

D. yellowing of leaves.

Answer: B

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53. In tea plantations and hedge making, gardeners trim the plants regularly so that they remain bushy. Scientific explanation behind this is

A. removal of apical dominance

B. growth of lateral buds

C. suppression of lateral buds

D. both (a) and (b)

Answer: D

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54. Removal of auxin source demonstrates that leaf abscission is _____by auxin, and apical dominance is_____by auxin.

A. promoted, promoted

B. inhibited, inhibited

C. promoted, inhibited

D. inhibited, promoted

Answer: D

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55. The hormone responsible for apical dominance is

A. I A A

B. GA

C. ABA

D. florigen

Answer: A

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56. Functions of auxins include

A. promoting flowering in pineapple

B. induing parthenocarpy in tomato

C. use as herbicides to kill dicot weeds

D. all of these

Answer: D

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57. To get a carpet like grass, lawns are mowed regularly, this is done to

A. remove the shoot apical meristem

B. remove the axillary buds

C. accelerate the growth of terminal bud

D. both (b) and (c)

Answer: D

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58. Arificial application of auxins like IA A, IBA and NA A to unpollinated pistils can form

A. furits with much flesh

B. larger fruits

C. sweet fruits

D. seedless fruits

Answer: D

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59. The term 'antiauxin' refers to

A. raw material used in the synthesis of auxin

B. compound which inhibits the action of auxin

C. arificially synthesised auxin

D. active form of auxin.

Answer: B

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60. Which of the following statements regarding gibberellins is incorrect?

A. GA_3 was one of the first gibberellins to be discovered

B. All GA are acidic

C. They increase the length of plant axis as in grapes sugarcanes etc.

D. They promote senescence.

Answer: D

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61. The fruits can be left on the three longer using GA so as to extend the market period. This is due to which function of GA?

A. Bolting

B. Delaying senescence

C. Internodal elongation

D. Inducing parthenocarpy

Answer: B

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62. To speed up the malting process in brewing industry the growth hormone used is

A. auxin

B. gibberellin

C. kinetin

D. ethylene

Answer: B

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63. Read the given statements and select the correct option.

statement 1 : Elongation of reduced stem is possible due to application of gibberellin hormone.

Statement 2: Gibberellin stimulates cell divison and cell elongation.

A. Both statements 1 and 2 are corret

B. Statement 1 is correct but statement 2 is incorrect

C. Statement 1 is incorrect but statement 2 is correct

D. Both statements 1 and 2 are incorrect

Answer: A

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64. Spraying sugarcane with gibberellins increases the yield by as much as 20 tonnes per acre. GA performs it by

A. inproving the quality of fruit

B. increasinf sugar content

C. Internodal elongation

D. delaying senescence.

Answer: C

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65. Dwarfness can be controlled by treating the plant with

A. cytokinin

B. gibberellic acid

C. auxin

D. antigibberellin

Answer: B

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66. Bolting, i.e. internode elongation just prior to flowering in beet, cabbage and many rosette plants, is promoted by

A. auxins

B. gibberellins

C. cytokinins

D. ethylene

Answer: B

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67. Internodal elongation is stimulated by

A. auxin

B. ABA

C. cytokinin

D. gibberellin

Answer: D

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68. Which phytohormone would you use if you are asked to 'bolt' a rosette plant?

A. Auxins

B. Gibberellins

C. Cytokinins

D. Any of these

Answer: B

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69. Which of the following physiological effects is caused in plants by gibberellic acid?

A. shortening of genetically tall plants

B. Elongation of genetically dwarf plants

C. Rooting in stem cuttings

D. Yellowing of young leaves

Answer: B

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70. The activity of α-amylase in the endosperm of a germinating seed of barley is induced by

A. ethylene

B. cytokinin

C. IA A

D. gibberellin

Answer: D

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71. Kinetin, a modified form of adenine was discovered from

A. autoclaved herring sperm DNA

B. coconut milk

C. corn kernel

D. fungus

Answer: A

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72. Hormone primarily concern with cell division is

A. IA A

B. NA A

C. cytokinin

D. gibberellic acid

Answer: C

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73. Match column I with column II and select the correct option from the codes given below.

$columnI$	$columnII$
A. Natural auxin	$(i)NAA$
B. Synthetic auxin	(ii)Zeatin
C. Bakane disease of rice	$(iii)IAA$
D. Natural cytokinin	$(iv)GA$
	(v)Kinetic

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

B. A-(i),B-(iii),C-(iv),D-(v)

C. A-(iii),B-(i),C-(iv),D-(v)

D. A-(iv),B-(i),C-(v),D-(ii)

Answer: A

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74. Natural cytokinins are synthesised in regions where rapid cell division occurs. Such regions are

A. root apices

B. developing shoot buds

C. young fruits

D. all of these

Answer: D

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75. What would happen if you forget to add cytokinin to the culture medium ?

A. Callus will not develop shoot buds

B. Callus will not develop root buds

C. Callus will stop differentiating

D. Both (a) and (b)

Answer: A

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76. In addition to auxins_____must be supplied to culture medium to obtain a good callus in plant tissue culture,

A. ABA

B. cytokinins

C. gibberellins

D. ethylene

Answer: B

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77. In plant tissue culture experiments, high auxin to cytokinin ratio favours_____development and high cytokinin to auxin ratio favours_____development.

A. root, shoot

B. root, root

C. shoot, shoot

D.

Answer: A

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78. A plant hormone used for inducing morphogensis in plant tissue culture is

A. abscisic acid

B. gibberellin

C. cytokinin

D. ethylene

Answer: C

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79. The phenomenon pf apical dominace can be overcome by exogenous application of

A. auxins

B. gibberellins

C. cytokinins

D. ethylene

Answer: C

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80. Phytohormone A causes apical dominance while phytohormone B overcomes the same. Select the option that correctly identifies A and B.

A. $\begin{matrix} A & B \\ \text{Auxin} & \text{Cytokinin} \end{matrix}$

B. $\begin{matrix} A & B \\ \text{Cytokinin} & \text{Auxin} \end{matrix}$

C. $\begin{matrix} A & B \\ \text{Gibberellin} & \text{Cytokinin} \end{matrix}$

D. $\begin{matrix} A & B \\ \text{Auxin} & \text{Gibberellin} \end{matrix}$

Answer: A

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81. Hormone that promotes growth of lateral buds and has nagative effect on apical dominance is

A. cytokinin

B. gibberellin

C. auxin

D. both (b) and (c)

Answer: A

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82. Auxin and cytokinin are antagonistic in which of the following funtions ?

A. Cell division

B. Phototropism

C. Apical dominance

D. Geotropism

Answer: C

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83. Induction of cell division activity and delay in senescence is caused by

A. gibberellin

B. auxin

C. cytokinin

D. ethylene

Answer: C

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84. Cytokinins help to produce all except

A. new leaces

B. chloroplast in leaces

C. lareral shoot growth and adventitious shoot formation

D. rooting on cut stem.

Answer: D

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85. Which among the following is not a function of cytokinis?

A. Essential for cytokinesis during cell division

B. Delays the senescence of leaves

C. Helps in fruit ripening

D. Helps to overcome apical dominance

Answer: C

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86. Match column I with column II and select the correct option from the codes given below.

$Column I$ (Phytohotomne)	$Column II$ (Plant part where it is synthesised)
$A.\ IAA$	(i) Tissues undergoing senescence
$B.$ Cytokinins	(ii) Shoot apices
$C.$ Ethylene	(iii) Root apices

A. A-(ii),B-(iii),C-(i)

B. A-(iii),B-(ii),C-(i)

C. A-(i),B-(ii),C-(iii)

D. A-(ii),B-(i),C-(iii)

Answer: A

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87. Read the given statements and select the correct option.

Statement 1: Ethylene is a gaseous hormone.

Statement 2: Ethylene causes climacteric ripening of fruits.

A. Both statements 1 and 2 are corret

B. Statement 1 is incorrect but statement 2 is incorrect

C. Statement 1 is incorrect but statement 2 is correct

D. Both statements 1 and 2 are incorrect

Answer: B

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88. Arifical ripening of fruits is caused by the treatment of

A. I A A

B. N A A

C. ethylene

D. Kinetin

Answer: C

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89. If a rotten fruit gets mixed with unripe fruits, the unripe fruits will

A. also be rotten

B. ripe quickly

C. remain unchanged

D. none of these

Answer: B

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90. The most widely used compound as a source of C_2H_4 is

A. Kinetin

B. zeatin

C. IBA

D. ethephon

Answer: D

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91. Read the given statements to identify the phytohormone that performs these functions.

(i) Horizontal growth of seedlings, swelling of the axis and apical hook formation in dicot seedlings.

(ii) Promoting senescence and abscission of leaves and flowers.

(iii) Breaking seed and bud dormancy.

(iv) Initiating germination in peanut seeds.

(v) Sprouting of potato tubers.

A. ABA

B. Ethylene

C. GA

D. Cytokinins

Answer: B

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92. Gibberellins promote the formation of $\underline{A}$flowers on genetically $\underline{B}$ plants in Cannabis whereas ethylene promotes formation of $\underline{C}$ flowers on genetically $\underline{D}$ Cannabis plants.

A. $\underset{\text{male}}{A}$ $\underset{\text{female}}{B}$ $\underset{\text{female}}{C}$ $\underset{\text{male}}{D}$

B. $\underset{\text{male}}{A}$ $\underset{\text{male}}{B}$ $\underset{\text{female}}{C}$ $\underset{\text{female}}{D}$

C. $\underset{\text{female}}{A}$ $\underset{\text{male}}{B}$ $\underset{\text{male}}{C}$ $\underset{\text{female}}{D}$

D. $\underset{\text{female}}{A}$ $\underset{\text{female}}{B}$ $\underset{\text{male}}{C}$ $\underset{\text{male}}{D}$

Answer: A

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

A. ABA

B. Ethylene

C. GA

D. Cytokinins

Answer: B

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94. Seed dormancy is caused by

A. C_2H_4

B. ABA

C. I A A

D. GA_3

Answer: B

Watch Video Solution

95. Select the mismatched pair.

A. Gibberellic acid - Increase yield of sugarcane

B. Cytokinin - Promotes apical dominance

C. Ethylene - Sprouting of potato tuber

D. Abscisic acid - Inhibits seed germination

Answer: B

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96. Read the given statements and identify the plant hormones X,Y and Z.

(i) Hormone Y induces flowering in mango and also promotes rapid internode/petiole elongation in deep water rice plants and hence helping leaves or upper part of shoot to remain above water.

(ii) Hormone X promotes root growth and root hair formation.

(iii) Hormone Z inhibits the seed germination, increases the tolerance of plant to various stresses, play important role in seed development, maturation and dormancy.

A. $Y - ABA, X - \text{Auxin}, Z - GA$

B. $Y - C_2H_4X - \text{Auxin}, Z - GA$

C. $Y - \text{Auxin}, X - C_2H_4, Z - GA$

D. $Y - C_2H_4, X - C_2H_4, Z - ABA$

Answer: D

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97. The hormone 'X' does the following functions.

(i) Induces seed dormancy.

(ii) Inhibits seed germination.

(iii) Stimulates closure of stomata. The hormone 'X' should be

A. ABA

B. ethylene

C. GA

D. cytokinins

Answer: A

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98. The hormone which reduces transpiration rate by inducing stomatal closure is

A. ABA

B. ethylene

C. cytokinin

D. gibberellin

Answer: A

Watch Video Solution

99. Bud dormancy is induced by

A. I A A

B. GA

C. ABA

D. ethylen

Answer: C

Watch Video Solution

100. Hormone responsible for ageing is

A. GA

B. I A A

C. ABA

D. cytokinin

Answer: C

Watch Video Solution

101. Read the given statements and select the option that correctly identifies the incorrect ones.

(i) Cytokinin is primarily concerned with cell division.

(ii) C_2H_4 breaks seed and bud dormancy

(iii) ABA stimulates the opening of stomata.

(iv) C_2H_4 initiates germination in peanut seeds, sprouting of potato

tubers.

(v) ABA is synergistic to GA.

A. (i),(ii) and (iv)

B. (iii) and (ii)

C. (iii) and (v)

D. (iv) and (v)

Answer: C

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102. Match column I with column II and select the correct option from the codes given below,

$Column I$	$Column II$
A. Auxin	(i)Fruit ripening
B. Cytokinins	(ii)Phototropism
C. abscisic acid	(iii)Antagonist to GAs
D. Ethylene	(iv)Growth of lateral buds

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

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

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

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

Answer: B

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103. Match column I with column II and select the correct option from the codes given below.

$Column I$	$Column II$
A. Auxins	(i)Breaking seed dormancy
B. Gibberellins	(ii)Inducing fruit ripening
C. Cytokinins	(iii)Formation of abscission layer
D. Ethylene	(iv)Root initiation
	(v)Chloroplast development in leaves

A. A-(iv), B-(i), C-(v), D-(ii)

B. A-(iv),B-(v),C-(iii),D-(ii)

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

D. A-(iii),B-(iv),C-(i),D-(v)

Answer: A

104. Plants which require an exposure to light for a period greater than critical day length are

A. long day plants

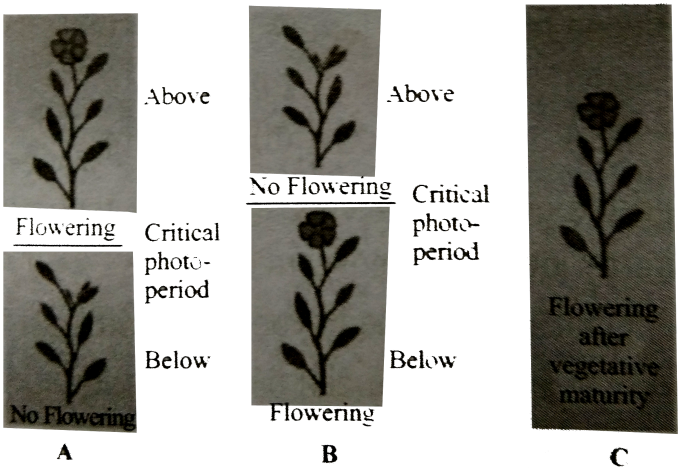
B. short day plants

C. long-short day plants

D. short-long day plants

Answer: A

105. The given figure shows flowering responses of three plants A,B and C to the photoperiod. Select the correct option regarding this.



A. A Long day plant B Day neutral plant C Short day plant

B. A Short day plant B Day neutral plant C Long day plant

C. A Long day plant B Short day plant C Day neutral plant

D. A Short day plant B Long day plant C Day neutral plant

Answer: C

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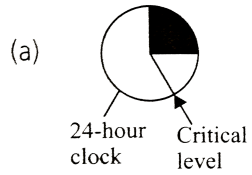
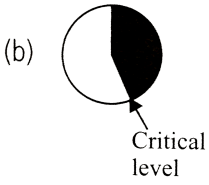
106. Maryland mammoth tabacco is a short day plant. Its critical duration of darkness is 10 hours. Under which of the following conditons will it not flower?

[Key : ▭ Light period ▬ Dark period]

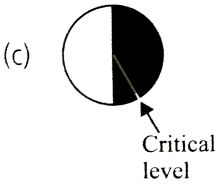
A.



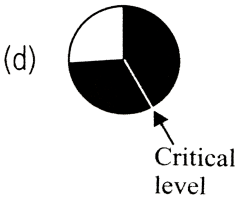
B.



C.



D.



Answer: A

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107. Four potted plants (I,II, III, and IV) of a short day plant, which has the crictical period of 14 hours, are taken and exposed to light for different time periods. The light periods given are listed in the table.

Potted plant	Photoperiod
I	$10hrs$
II	$15hrs$
III	$16hrs$
IV	$20hrs$

Which potted plant will show flowering after exposure to light?

A. I

B. II

C. III

D. IV

Answer: A

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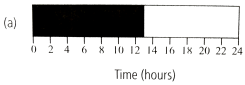
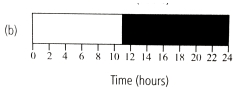
108. Sedum is a long day plant. Its critical duration of light is 13 hours. Under which of the following conditions would it flower?

[Key : ☐ = Period of light ■ = Period of darkness]

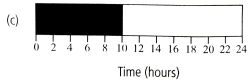
A.



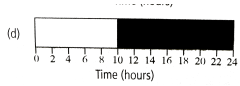
B.



C.



D.



Answer: C

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109. Phenomenon of photoperidodism was first discovered by _____in the "Maryland mammoth" variety of_____

A. Garner and Allard, tobacco

B. Went, tobacco

C. Garner and Allard, cocklebur

D. Knott, cocklebur

Answer: A

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110. The effect of daily duration of light and dark periods on the growth and development of plants, especially flowering, is called

A. thermotaxism

B. thermotropism

C. phototropism

D. photoperiodism

Answer: D

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111. Photoperiod stimulus is perceived by___pigment.

A. cryptochrome

B. cytochrome

C. phytochrome

D. monochrome

Answer: C

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112. Low temperature treatment to speed up the process of flowering is referred to as

A. photoperiodism

B. vernalisation

C. thermoperiodism

D. hydroponics

Answer: B

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113. The stimulus of cold treatment (vernalisation) is perceived by

A. leaves

B. flowers

C. roots

D. shoot apices

Answer: D

Watch Video Solution

114. Cabbage is a biennial plant which produces flowers in second year of growth. In an attempt to make it flower in a single year, four potted plants (I,II, II, and IV) of cabbage were subjected to different temperatures for several days as given in the table.

Potted plant	Temperature
I	$5^{\circ}C$
II	$20^{\circ}C$
III	$30^{\circ}C$
IV	$25^{\circ}C$

Which potted plant will show flowering ?

A. I

B. II

C. III

D. IV

Answer: A

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115. Vernalisation can often be replaced by

A. auxin

B. cytokinins

C. gibberellins

D. ethylene

Answer: C

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116. Which of the following inhibitors causes seed dormancy?

A. Abscisic acid

B. Phenolic acid

C. Para ascorbic acid

D. All of these

Answer: D

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117. Select the incorrect statement.

A. Impermeable and hard seed-coat causes seed dormancy

B. Effect of inhibitory substances can be removed by subjecting the seeds to gibberellic acid and nitrates.

C. Immature embryos causes seed dormancy

D. None of these

Answer: D

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118. Dormancy of seeds is broken by red light in

A. gram

B. pea

C. lettuce

D. castor

Answer: C

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119. In Xanthium and many grasses seed dormancy occurs due to

A. Impermeability of seed coats to oxygen

B. Impermeability of seed coats to water

C. Immaturity of embryo

D. Germination inhibitor

Answer: A

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120. A process of breaking seed dormancy of some plants in which seeds are treated in moist medium at low temperature $(5 - 10^{\circ} C)$ for period of time is known as.

A. scarification

B. stratification

C. vernalisation

D. none of these

Answer: A

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121. A young dicot seedling (e.g., soyabean) is laid horizontally on a surface and is subjected to gravity stimulus. The shoot bends in upward direction and the root bends in downwards direction. Which out of the following is the possible reason for this movement ?

A. Redistribution of auxins throughout the seedlings is responsible for the stimulatory unequal growth in shoots and roots.

B. Redistribution of cytokinins throughout the seddling is respondible for the stimulatory unequal growth in roots and shoots.

C. Redistribution of auxins in roots and cytokinins in shoots is responsible for stimulatory unequal growth.

D. Redistribution of auxins in shoots and cytokininis in roots is responsible for stimulatory unequal growth.

Answer: a

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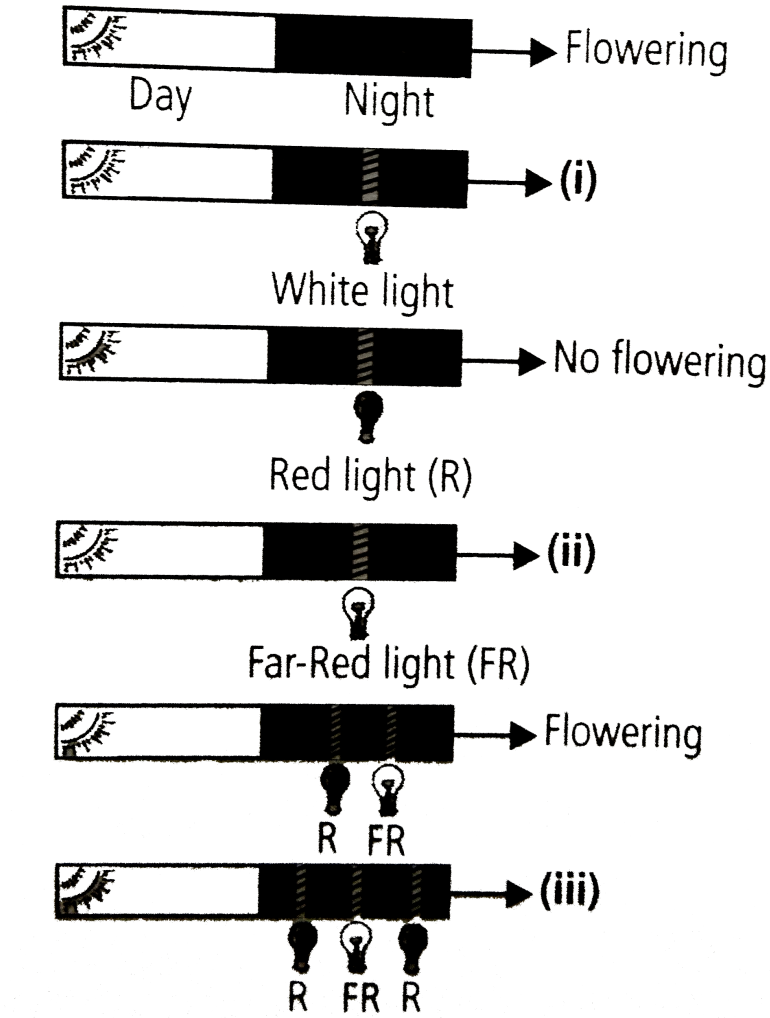
122. Given figure shows the effect of interruption of skotoperiod (dark period) in a short day plant by light of different types.



Select the correct option for (i),(ii) and (iii).

A. (i) Flowering (ii) Flowering (iii) No flowering

B. (i) No flowering (ii) No flowering (iii) Flowering

C. (i) No flowering (ii) Flowering (iii) No flowering

D. (i) Flowering (ii) No flowering (iii) No flowering

Answer: c

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123. A farmer while graphe plants in his garden, observes the following:

Fruit size normally remained small.

(ii) Natural seed abortion.

(iii) Reduced stem and leaf growth.

Which problems could be solved by application of gibberellic acid during the development of fruits?

A. (i) and (ii)

B. (i) and (iii)

C. (i),(ii) and (iii)

D. None of these

Answer: b

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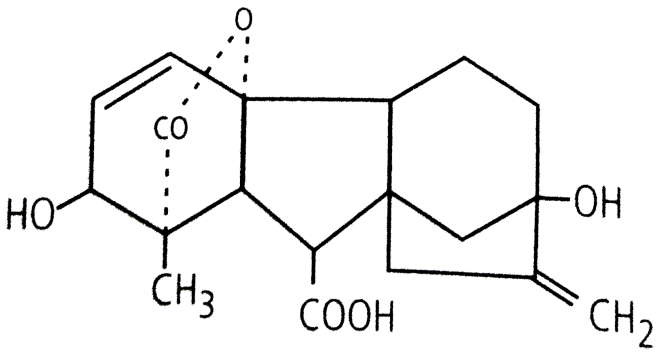
124. Select the correct option regarding the phytohormone to which the given molecualar structure belongs.



A. The hormone promotes femaleness in most flowers.

B. The hormone promotes apical domiance.

C. The hormone usually decreases the size of stem, leaves, flowes and fruits

D. The hormones breaks seed dormancy by synthesis of certain enzymes.

Answer: d

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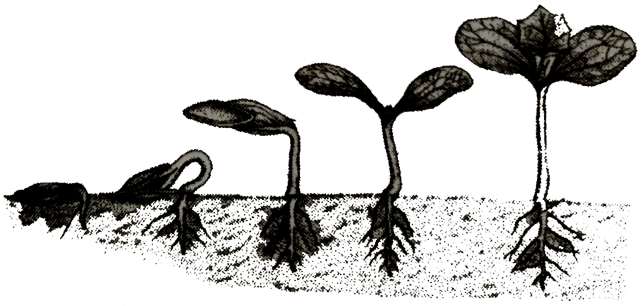
125. Seed germination is the sprouting of a seed and growth of the embryo present inside the seed into a seedling or young plant capable of independent existencegt Refer the given figure showing seed germination and mark the incorrect option.



A. Cotyledons are brought out of the soil by the greater growth of hypocotyl

B. Cotyledons becoms green and functional as first leaves of the seedling.

C. The hypocotyl does not elongate much, instead the epicotyl grows and takes the plumule above the soil.

D. This kind of germination is found in seeds of beans.

Answer: c

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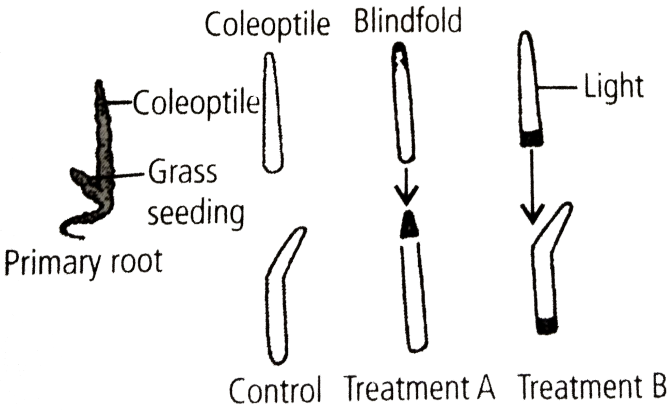
126. Charles Darwin and his son, Francis experimented with phototropism of grass seedlings by placing a metal foil blindfold over different parts of the seedling's coleoptile. A simplified version of their results is shown below. Which of the following statements best explains their results?



A. The light signal is perceived a few milimetres below the tip, and these cells cause the coleoptile to grow toward the light.

B. Both the seedling root and coleoptile perceie and respond to light in the same manner.

C. A chemical messenger must travel from the base of the coleoptile to the tip.

D. The light signal is perceived at the tip of the coleoptile, but the growth response occurs a few milimetres below the tip.

Answer: d

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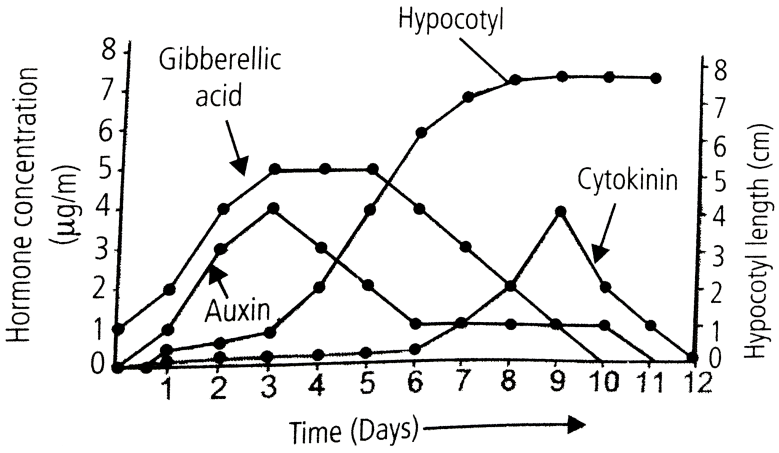
127. Plant hormones play a role in regulating seed germination. The graph shows changes in hormone concentrations (left axis) and hypocotyl growth (right axis) over time for moong bean. Which hormone(s) most likely regulates hypocotyl (bean sprout) growth during moong bean

germination?



A. Gibberellic acid

B. Auxin

C. Cytokinin alone

D. Both (a) and (b)

Answer: d

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128. Ethylene is used for

A. retarding ripening of tomatoes

B. hastening of ripening of fruits

C. slowing down ripening of apples

D. both (b) and (c)

Answer: b

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129. Coconut water contains

A. ABA

B. auxin

C. cytokinin

D. gibberellin

Answer: c

Watch Video Solution

130. The effect of apical dominance can be overcome by which of the following hormone ?

A. IA A

B. Ethylene

C. Gibberellin

D. Cytokinin

Answer: d

Watch Video Solution

131. Match the following.

$A.\ IAA$	(i)Hering spermDNA
$B.\ ABA$	(ii)Bolting
$C.$ Ethylene	(iii)Stomatal closure
$D.\ GA$	(iv)Weed-free lawns
$E.$ Cytokinins	(v)Ripening of fruits

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

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

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

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

Answer: a

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132. Apples are generally wrapped in waxed paper to

A. prevent sunlight for changing its colour

B. prevent aerobic respiration by checking the entry of O_2

C. prevent ethylene formation due to injury

D. make the apples look attractive

Answer: b

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133. Growth can be measured in various ways. Which of these can be used as parameters to measure growth?

A. Increase in cell number

B. Increase in cell size

C. Increase in length and weight

D. All the above

Answer: d

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134. The term synergistic action of hormones refers to

A. when two hormones act together but bring about opposite effects.

B. when two hormonea act together and contribute to the same function.

C. when one hormone affects more than one function

D. when many hormones bring about any one function

Answer: b

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135. Plasticity in plant growth means that

A. plant roots are extensible

B. plant development is dependent on the environment

C. stems can extend

D. none of the above

Answer: b

Watch Video Solution

136. To increase sugar production in sugarcanes, they are sprayed with

A. I A A

B. cytokinin

C. gibberellin

D. ethylene

Answer: c

Watch Video Solution

137. ABA acts antagonistic to

A. ethylene

B. cytokinin

C. gibberellic acid

D. IA A

Answer: c

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138. Monocarpic plants are those which

A. bear flowers with one ovary

B. flower once and die

C. bear only one flower

D. all of the above

Answer: b

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139. The photoperiod in plants is perceived at

A. meristem

B. flower

C. floral buds

D. leaves

Answer: d

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140. Assertion : Primary growth of the plants contributes to the elongation of the plants along their axis.

Reason : Root apical meristem and shoot apical meristem are responsible for primary growth of the plants.

A. If both assertion and reason are true and reason is the correct explanation of assertion

B. If both assertion and reason are true but reason is not the correct explanation of assertion

C. If assertion is true but reason is false

D. If both assertion and reason are false

Answer: a

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141. Assertion : The constantly dividing cells both at the root apex and the shoot apex, show the meristematic phase of growth.

Reason : The cells of this region are rich in protoplasm and are without nuclei.

A. If both assertion and reason are true and reason is the correct explanation of assertion

B. If both assertion and reason are true but reason is not the correct explanation of assertion

C. If assertion is true but reason is false

D. If both assertion and reason are false

Answer: c

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142. Assertion : Nutrients are required by plants for the synthesis of protoplasm and act as source of energy.

Reason : Water provides the medium for enzymatic activities needed for growth.

A. If both assertion and reason are true and reason is the correct explanation of assertion

B. If both assertion and reason are true but reason is not the correct explanation of assertion

C. If assertion is true but reason is false

D. If both assertion and reason are false

Answer: b

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143. Assertion : Development is the sum of growth and differentiation.

Reason : Development in plants is under the control of extrinstic factors only.

A. If both assertion and reason are true and reason is the correct explanation of assertion

B. If both assertion and reason are true but reason is not the correct explanation of assertion

C. If assertion is true but reason is false

D. If both assertion and reason are false

Answer: c

Watch Video Solution

144. Assertion : The difference in shapes of leaves produced in air and those produced in water in buttercup represent the heterophyllous development due to environment.

Reason : The phenomenon of heterophylly is an example of plasticity.

A. If both assertion and reason are true and reason is the correct explanation of assertion

B. If both assertion and reason are true but reason is not the correct explanation of assertion

C. If assertion is true but reason is false

D. If both assertion and reason are false

Answer: b

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145. Assertion : Auxins help to prevent fruits and leaves droo at early stages.

Reason : Auxins promote the abscission of older mature leaves and fruits.

A. If both assertion and reason are true and reason is the correct explanation of assertion

B. If both assertion and reason are true but reason is not the correct explanation of assertion

C. If assertion is true but reason is false

D. If both assertion and reason are false

Answer: b

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146. Assertion : Decapitation is widely used in tea plantation and hedge-making.

Reason : Removal of shoot tips usually results in the growth of lateral buds.

A. If both assertion and reason are true and reason is the correct explanation of assertion

B. If both assertion and reason are true but reason is not the correct explanation of assertion

C. If assertion is true but reason is false

D. If both assertion and reason are false

Answer: a

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147. Assertion : 2,4-D is extensively used in agricultural and horticultural practies.

Reason : 2,4-D is a herbicide.

A. If both assertion and reason are true and reason is the correct explanation of assertion

B. If both assertion and reason are true but reason is not the correct explanation of assertion

C. If assertion is true but reason is false

D. If both assertion and reason are false

Answer: a

Watch Video Solution

148. Assertion : Gibberellins cause fruits like apple to elongate and improve its shape.

Reason : GA_3 is used to speed up the malting process in brewing industry.

A. If both assertion and reason are true and reason is the correct explanation of assertion

B. If both assertion and reason are true but reason is not the correct explanation of assertion

C. If assertion is true but reason is false

D. If both assertion and reason are false

Answer: b

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149. Assertion : Kinetin is found naturally in plants.

Reason : Cytokinin breaks seed and bud dormancy.

A. If both assertion and reason are true and reason is the correct explanation of assertion

B. If both assertion and reason are true but reason is not the correct explanation of assertion

C. If assertion is true but reason is false

D. If both assertion and reason are false

Answer: d

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150. Assertion : The most widely used compound as source of ethylene is ethephon.

Reason : Ethephon hastens fruit ripening in tomatoes and apples and accelerates abscission in stems and leaves.

A. If both assertion and reason are true and reason is the correct explanation of assertion

B. If both assertion and reason are true but reason is not the correct explanation of assertion

C. If assertion is true but reason is false

D. If both assertion and reason are false

Answer: c

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151. Assertion : Auxin was isolates by F.W. went from the tips of coleoptiles of wheat seedlings.

Reason : Etylene delays the senescence.

A. If both assertion and reason are true and reason is the correct explanation of assertion

B. If both assertion and reason are true but reason is not the correct explanation of assertion

C. If assertion is true but reason is false

D. If both assertion and reason are false

Answer: d

Watch Video Solution

152. Assertion : Abscisic acid (ABA) is also called stress hormone.

Reason : ABA increases the tolerance of plants to various kinds of stresses.

A. If both assertion and reason are true and reason is the correct explanation of assertion

B. If both assertion and reason are true but reason is not the correct explanation of assertion

C. If assertion is true but reason is false

D. If both assertion and reason are false

Answer: a

Watch Video Solution

153. Assertion : In some plants flowering depends only on a combination of light and dark exposure.

Reason : The site of perception of light or dark duration are the shoot apices of plants.

A. If both assertion and reason are true and reason is the correct explanation of assertion

B. If both assertion and reason are true but reason is not the correct explanation of assertion

C. If assertion is true but reason is false

D. If both assertion and reason are false

Answer: d

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154. Assertion : Vernalisation is the promotion of flowering by a period of low temperature.

Reason : It prevents precocious reproductive development late in the growing season.

A. If both assertion and reason are true and reason is the correct explanation of assertion

B. If both assertion and reason are true but reason is not the correct explanation of assertion

C. If assertion is true but reason is false

D. If both assertion and reason are false

Answer: b


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