BIOLOGY

BOOKS - MBD

Plant Growth and Development

Example

1. Name two processes during growth and development which are common to plants and animals.

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2. List a few changes which occur during cell differentiation.

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3. Is growth in plants deinite or indefinite?

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4. List the parameters used for measuring growth in plants.

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5. Name the actively dividing cells in plants.

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6. Does the daughter cells formed in geometrical growth retain the ability to

divide?

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7. List any two factors which influence growth.

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8. The maximum growth rate occurs in

A. stationary growth

B. senescent stage

C. lag phase

D. exponential phase

Answer:

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9. Intercalary meristem results in:

A. secondary growth

B. primary growth

C. apical growth

D. lateral

Answer:

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10. Name the plant hormone that inhibits the growth of plants.

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11. Name the two synthetic auxins used for inducing the rooting in woody plants.

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12. What is the full form of IAA?

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13. What is the full form of NAA?

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14. What is the full form of IBA?

15. What does an overripe apple release which affects other apples in the basket?

16. Name the stress hormone in plants that functions during drought.

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17. Where are auxin synthesized in plants? Mention any two of their functions.

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18. Write two methods of breaking seed dormancy.

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19. What is seed dormancy?

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20. What are the internal factors which regulate growth and development?

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21. What is short night plant ? Give examples.

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22. What is photoperiodism?

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23. Define florigen.

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24. What is epinasty?

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25. What do you understand by phytochrome?

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26. Name two long day, two short day and 2 day neutral plants.

Watch Video Solution

27. Fill in the blank

Gibberellins stimulate stem elongation and leaf.....

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28. Fill in the blank

In conjunction with auxins,.....stimulate cell division even in non-meristematic tissues.

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29. Fill in the blank

Dormant seeds germinate when .....is overcome by gibberellins.

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30. Fill in the blank

ABA also acts as .....hormones.

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31. Trur or False:

Growth movements are due to differential growth.

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32. Trur or False:

Gibberellins cause parthenocarpy in some type of fruits.

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33. Trur or False:

Ethylene retards abscission of leaves, flowers and fruits.

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34. Trur or False:

Growth is rapid in lag phase.

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35. Trur or False:

As the cells cease to divide, they increase in size.

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36. Give the technical terms used for the following:

Growth is an increase in the amount of protoplasm, usually accompanized by an irreversible increase in size and weight, involving the division, enlargement and the differentiation of cells.

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37. Give the technical terms used for the following:

The sequence of processes in the overall life history of a cell or an organism including growth, differentiation, Maturation and senescence.

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38. Give the technical terms used for the following:

In unicellular organisms growth involves increase in volume and number of organelles, cell division serves as a means of reproduction in these organisms and leads to increase in population.

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39. Give the technical terms used for the following:

The period of suspended growth due to exogenous control.

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40. determinate growth, meristem and growth rate.

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41. Why is not any one parameter good enough to demonstrate growth throughout the life of a flowering plant?

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42. Describe briefly: Arithmetic growth

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43. Describe briefly: Geometric growth

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44. Describe briefly: Sigmoid growth curve

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45. Describe briefly: Absolute and relative growth rates

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46. List five main groups of natural plant growth regulators. Writea note on discovery, physiological functions and agricultural/horticultural applications of any one of them.

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47. What do you understand by photoperiodism and vernalisation? Describe their significance.

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48. Why is abscisic acid also known as strress hormone?

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49. 'Both growth and differentiation in higher plants are open'. Comment.

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50. 'Both a short day plant and a long day plant can produce flower simultaneously in a given place'. Explain.

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51. Which one of the plant growth regulators would you use if you are asked to:

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52. Which one of the plant growth regulators would you use if you are asked to:

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53. Which one of the plant growth regulators would you use if you are asked to:

Watch Video Solution

54. Which one of the plant growth regulators would you use if you are asked to:

Watch Video Solution

55. Which one of the plant growth regulators would you use if you are asked to:

Watch Video Solution

56. Which one of the plant growth regulators would you use if you are asked to:

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57. What would be expected to happen if: GA3 is applied to rice seedlings

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58. What would be expected to happen if: dividing cells stop differentiating

Watch Video Solution

59. What would be expected to happen if:

a rotten fruit gets mixed with unripe fruits

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60. What would be expected to happen if: you

forget to add cytokinin to the culture medium.

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61. Would a defoliated plant respond to photoperiodic cycle? Why?

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62. Fill in the place

A phase of growth which is maximum and fastest is .....

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63. Fill in the place

Apical dominance as expressed in dicotyledonous plants is due to the presence of more ..... In the apical bud than in the lateral ones.

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64. Fill in the place

In addition to auxin, a .....must be suppied

to culture medium to obtain a good callus in plant tissue culture.

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65. Fill in the place .....of a vegetative plants are the sites of photoperiodic perception.

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66. Plant Growth Substances (PGS) have innumerable practical applications. Name the PGS you should use to:

Increase yield of sugar cane

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67. Plant Growth Substances (PGS) have innumerable practical applications. Name the PGS you should use to:

Promote lateral shoot growth

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68. Plant Growth Substances (PGS) have innumerable practical applications. Name the PGS you should use to:

Cause sprouting of potato tuber

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69. Plant Growth Substances (PGS) have innumerable practical applications. Name the

PGS you should use to:

Inhibit seed germination

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70. A primary root grows from 5 cm to 19 cm in a week. Calculate the growth rate and relative growth rate over the period.

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71. Gibberellins were first discovered in Japan when rice plants were suffering from bakane (the foolish seedling disease) caused by a fungus Gibberella fujikuroi.

Give two functions of this phytohormone

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72. Gibberellins were first discovered in Japan when rice plants were suffering from bakane (the foolish seedling disease) caused by a

fungus Gibberella fujikuroi.

Which property of Gibberellin caused foolish seeding disease in rice?

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73. Gibberellins promote the formation of .....flowers on genetically .....plants in Cannabis whereas ethylene promotes formation of .....flowers on genetically .....plants.

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74. Classify the following plants into Long- Day Plants(LDP). Short Day Plants (SDP) and Day neutral Plants (DNP) Xanthium, (Hyoscyamus niger). Spinach, Rice, Strawberry, Bryo-phyllum, Tomato, Maize.

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75. A farmer grows cucumber plants in his field. He wants to increase the number of

female flowers in them. Which plant growth regular can be applied to achieve this?

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76. Where the following hormones synthesized in plants:

IAA

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77. Where the following hormones synthesized in plants:

Gibberellins

78. Where the following hormones synthesized in plants:

Cytokinins

79. In botanical gardens and tea gardens, gardens trim the plants regularly so that they remian bushy. Does this practice have any scientific explanation?

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80. Light plays an important role in the life of all organism. Name any three physiological processes in plants which are ffected by light.

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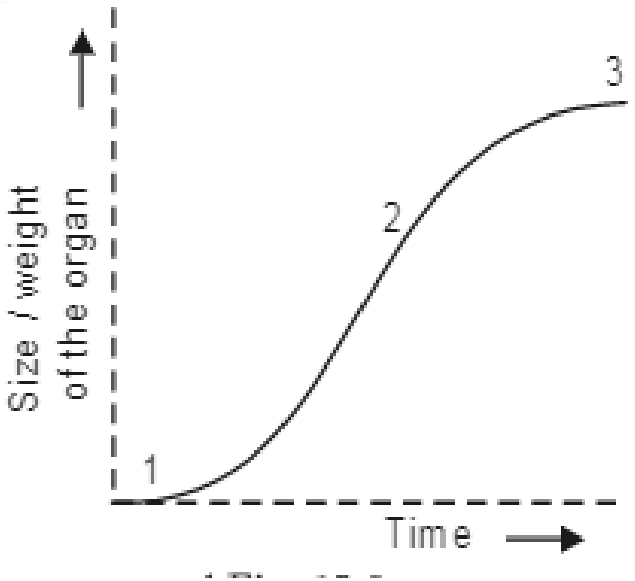
81. In the figure of Sigmoid growth curve given below, label segments 1, 2 and 3.



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82. Growth is one of the characteristic of all living organism. Do unicellular organism also grow? If so, what are the parameters?

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83. The rice seedling infected with fungus Gibberlla fujikuroi is called foolish seedings? What was the reason behind it?

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84. Nicotiana tabacum, a Short Day Plant, when exposed to more than critical period of light fails to flower. Explain.

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85. What are the structural charcteristics of:

meristematic cells near root tip

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86. What are the structural charcteristics of:

the cells in the elongation zone of the root?

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87. Does the growth pattern in plants differ from that in animals? Do all the parts of plant grow indefinitely? If not, name the regions of plant, which can grow indefinitely.

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88. Explain in 2-3 lines each of the following terms with the help of examples taken from different plant tissues:

Differentiation

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89. Explain in 2-3 lines each of the following terms with the help of examples taken from different plant tissues:

De-differentiation

Watch Video Solution

90. Explain in 2-3 lines each of the following terms with the help of examples taken from different plant tissues:

redifferentiation

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91. Auxins are growth hormones capable of promoting cell elongation. They have been used in horticulture to promote growth,

flowering and rooting. Write a line to explain the meaning of the following terms relate to

auxins

auxin precursors

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92. Auxins are growth hormones capable of promoting cell elongation. They have been used in horticulture to promote growth, flowering and rooting. Write a line to explain the meaning of the following terms relate to

auxins

anti-auxins

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93. Auxins are growth hormones capable of promoting cell elongation. They have been used in horticulture to promote growth, flowering and rooting. Write a line to explain the meaning of the following terms relate to auxins

synthetic auxins

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94. The role of ethylene and abscisic acid is both positive and negative. Justify the statement.

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95. While experimentation, why do you think it is difficult to assign any affect seen to any single hormone?

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96. What is the mechanism underlying the phenomenon by which the terminal /apical bud suppresses the growth of lateralbuds? Suggest measures to overcome this phenomenon.

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97. In animals there are special glands secreting hormones, whereas there are no

glands in plants. Where are plant hormones formed? How are the hormones translocated to the site of activity?

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98. Many discoveries in science have been accidental. This is true for plant hormones also. Can you justify this statement by giving an example? Also what term is used for such accidental findings?

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99. To get a carpet like grass lawns are mowed regularly. Is there any scientific explanation for this?

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100. In a slide showing different types of cells can you identify which is incapable of dividing and how?

Watch Video Solution

101. A rubber band stretches and reverts back to its original position. Bubble gum stretches, but it would not return to its original position. Is there any difference between the two processes? Discuss it with respect to plant growth(Hint: Elasticity(reversible) Plasticity (irreversible).

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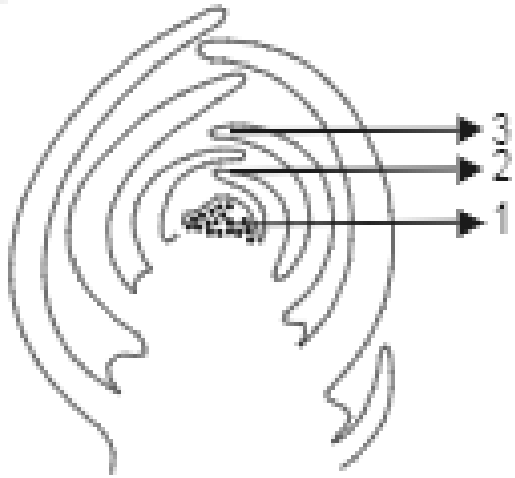
102. Label the diagram:

This is which part of a dicotyledonous plant?



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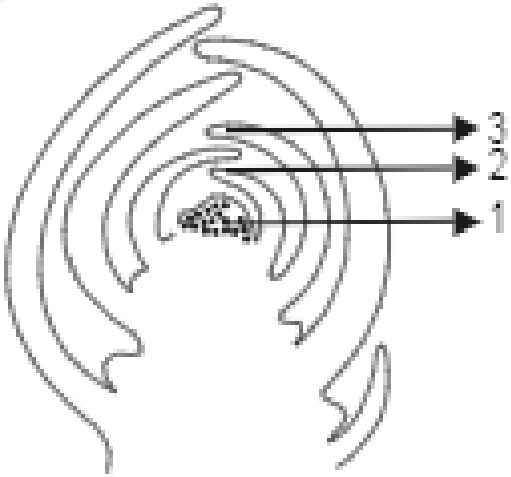
103. Label the diagram:

If we remove part 1 from the plant, what will

happen?



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104. Define parthenocarpy. Name the plant hormone used to induce parthenocarpy.

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105. While eating watermelons, all of us wish it was seedless. As a plant physiologist can you suggest any method by which this can be achieved?

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106. A gardener find some broad leaved dicot weed growing in the lawn. What can be done to get rid of these weeds efficiently.

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107. On germination a seed first produces shoots with leaves, flowers appear later.

Why do you think this happens?

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108. On germination a seed first produces shoots with leaves, flowers appear later.

How is this advantageous to the plant?

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109. Fill in the blanks

Maximum growth is observed in .....phase.

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110. Fill in the blanks

Apical dominance is due to .....

Watch Video Solution

111. Fill in the blanks

.....initiate rooting.

Watch Video Solution

112. Fill in the blanks

Pigment involved in Photoperception in flowering plants is .....

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113. Some varieties of wheat are knows as spring wheat while other are called winter wheat. Former variety is sown and planted in spring and it harvested by the end of the same season. However, winter varieties, if planted in spring, fail to flower or produce mature grains within a span of a flowering seasons. explain, why?

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114. It is known that some barieties of wheat are sown in autumn but are harvested around next mid summer.

What could be the probable reason for this?

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115. It is known that some barieties of wheat are sown in autumn but are harvested around next mid summer.

What term is used for this promotion of flowering under low temperature?

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116. It is known that some varieties of wheat are sown in autumn but are harvested around next mid summer.

Which plant hormone can replace the cold treatment?

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117. Name a hormone which:

is gaseous in nature

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118. Name a hormone which:

is responsible for phototropism

Watch Video Solution

119. Name a hormone which:

induces femaleness in flowers of cucumber

Watch Video Solution

120. Name a hormone which:

is used for killing weed(dicots)

Watch Video Solution

121. Name a hormone which:

induces flowering in long day plants.

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122. What is seed dormancy?

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123. List three causes of seed dormancy.

Watch Video Solution

124. Name a few inhibitors.

Watch Video Solution

125. List two essential conditions for seed germination.

Watch Video Solution

126. List the regions in which cell division occur during growth.

Watch Video Solution

127. Define growing season and flowering season.

Watch Video Solution

128. What are the factors which govern the development in a plant?

Watch Video Solution

129. Expand IAA, ABA and 2, 4-D.

Watch Video Solution

130. Why do leaves drop off seasonally?

Watch Video Solution

131. What do you understand by apical dominance?

Watch Video Solution

132. What is GA_3?

Watch Video Solution

133. Does kinetin occur naturally?

Watch Video Solution

134. What is the souces of zeatin?

Watch Video Solution

135. Write full form of 2, 4-D. also mention one use of it in agriculture.

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136. How light effects germination in pea and onion plants?

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137. Which plant hormone is named Anti-ageing hormone?

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138. Explain the biological meaning of growth.

Watch Video Solution

139. In what essential ways does plants growth differ from animal growth?

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140. List phases of growth.

Watch Video Solution

141. What are the main stages during the life cycle of a plant?

Watch Video Solution

142. Show absolute and relative growth rate with the help of figure.

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143. What will you do to prevent leaf fall and fruit drop in plants? Support your answer with reason.

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144. Name two synthetic auxins. How are they used in agriculture?

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145. What are the functions of cytokinins?

Watch Video Solution

146. Write one important function of auxins, Gibberellins and Cytokinins.

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147. Taking the examples of auxins and cytokinins together explain:

a synergetic action in plants

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148. Taking the examples of auxins and cytokinins together explain:

an antagonistic action in plants.

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149. Explain inhibitory effect of auxins with the help of one example.

Watch Video Solution

150. Explain apical dominance. Name the hormone that controls it.

Watch Video Solution

151. What is bolting? What conditions can induce bolting naturaly and how can it be induced artificially?

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152. Differentiate cytochrome and phytochrome.

Watch Video Solution

153. "Ageing and senescence terms are not synonym." comment.

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154. Write a note on Florigen.

Watch Video Solution

155. What is the effect of light intensity and light quality on growth of plant?

Watch Video Solution

156. What is photoperiodism?

Watch Video Solution

157. Define critical day length.

Watch Video Solution

158. Which organ perceive the stimulus of photoperiod.

Watch Video Solution

159. Differentiate short day and long day plants.

Watch Video Solution

160. Short day plants are truly long night plants. Explain.

Watch Video Solution

161. What will happen if a tobacco plants is given short day conditions during long day season?

Watch Video Solution

162. Why is the term long-day plant a misnomer?

Watch Video Solution

163. What is the differencebetween florigen and other growth hormones?

Watch Video Solution

164. What is phytochrome?

Watch Video Solution

165. What is the role of phytochrome in flowering and seed germination of plant?

Explain.

Watch Video Solution

166. Differences between Ageing, Senesence and Death.

Watch Video Solution

167. What is devernalization?

Watch Video Solution

168. Differentiate Photropism and Photoperiodism.

Watch Video Solution

169. What is development ? Depict the sequence of development process in a plant cell.

Watch Video Solution

170. Illustrate germination an development of seed with the help of digrams only .

Watch Video Solution

171. What is seed dormancy? Write methods of breaking seed dormancy.

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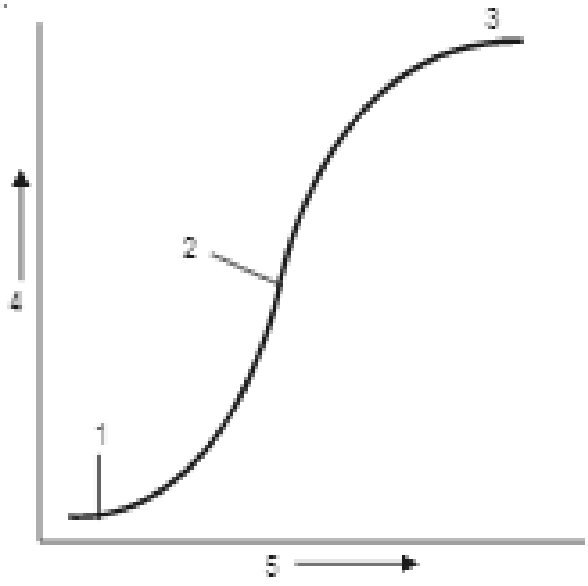
172. What is the effect of light on flowering?

Watch Video Solution

173. S-shaped growthcurve is shown in the diagram (i) Label 1 to 5 (ii) Write short notes on 1 and 2.



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174. Explain how it is possible that a short day plant and a long day plant frowing in the same location could flower on the same day of the year.

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Exercise

1. A phase of growth which is maximum and fastest is .....

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2. Write two functions of auxins.

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3. Which property of gibberelins cause foolish seeding disease in rice?

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4. Define dedifferentiation.

Watch Video Solution

5. Where the following hormones synthesized in plants:

IAA

Watch Video Solution

6. Where the following hormones synthesized in plants:

Cytokinins

Watch Video Solution

7. Describe arithmetic growth.

Watch Video Solution

8. What are three phases of growth?

Watch Video Solution

9. Write physiological role of ABA.

Watch Video Solution

10. What are the structural charcteristics of:

meristematic cells near root tip

Watch Video Solution

11. The role of ethylene and abscisic acid is both positive and negative. Justify the statement.

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12. List four uses of auxins.

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13. Differences between Ageing, Senesence and Death.

Watch Video Solution

14. Explain vernalization.

Watch Video Solution

15. Describe methods of breaking seed dormancy.

Watch Video Solution