



BIOLOGY

BOOKS - MODERN PUBLISHERS

BIOLOGY (HINGLISH)

PLANT GROWTH AND DEVELOPMENT

Practice Problem Plant Growth

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

animals.



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2. List a few structural modifications which occur during cell differentiation.



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3. Is growth in plants definite or indefinite?



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4. Define growth season and flowering season.



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



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6. Expand IAA, ABA, 2-4D.



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7. Why do leaves drop off seasonally?



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8. What do you understand by apical dominance?



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9. What is GA3?



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10. What is Gibberella fujikuroi?



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11. Does kinetin occur naturally?



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12. What is source of Zeatin?



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13. What is the function of pulvinus? Give one example of the plant having it.



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14. What is hydroponics?



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15. Name few synthetic auxins.



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16. What are anti-auxins? Give some examples.



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17. What are short day plants?



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18. Who discovered auxin?



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Ncert File Ncert Exercise Questions

1. Define growth, differentiation, development, dedifferentiation, redifferentiation, determinate growth, meristem and growth rate.



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



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3. Describe briefly:

(a) Arithmetic growth

(b) Geometric growth

(c) Sigmoid growth curve

(d) Absolute and relative growth rates



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



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



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6. Why is abscisic acid also known as stress hormone ?



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



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



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

(a) Induce rooting in a twig

(b) Quickly ripen a fruit

(c) Delay leaf senescence

(d) Induce growth in axillary buds

(e) 'Bolt' a rosette plant

(f) Induce immediate stomatal closure in leaves.



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



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11. What would be expected to happen if:

(a) GA_3 is applied to rice seedlings

(b) Dividing cells stop differentiating

(c) A rotten fruit gets mixed with unripe fruits

(d) You forget to add cytokinin to the culture medium.



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Ncert File Ncert Exemplar Problem A Multiple Choice Questions

1. 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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2. Coconut milk contains

A. ABA

B. Auxin

C. Cytokinin

D. Gibberellin

Answer: C



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3. The affect of apical dominance can be overcome by which of the following hormone

A. IAA

B. Ethylene

C. Gibberellin

D. Cytokinin

Answer: D



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4. Match the following:

(A) IAA	(i) Herring sperm DNA
(B) ABA	(ii) Bolting
(C) Ethylene	(iii) Stomatal closure
(D) GA	(iv) Weed-free lawns
(E) Cytokinins	(v) Ripening of fruits

Options:

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

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

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

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

Answer: A



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5. 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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6. 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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7. The term synergistic action of hormones refers to

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

B. When two hormones 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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8. Plasticity in plant growth means that

A. Plant roots are extensible

B. Plant growth is dependent on the environment

C. Stems can extend

D. None of the above

Answer: B



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9. To increase sugar production in sugarcane, they are sprayed with

A. IAA

B. Cytokinin

C. Gibberellin

D. Ethylene

Answer: C



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10. ABA acts antagonistic to

A. Ethylene

B. Cytokinin

C. Gibberlic acid

D. IAA

Answer: C



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11. 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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12. The photoperiod in plants is perceived at

A. Meristem

B. Flower

C. Floral buds

D. Leaves

Answer: D



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Ncert File Ncert Exemplar Problem B Very Short Answer Type Questions

1. Fill in the places with appropriate word/ words.

(a) A phase of growth which is maximum and fastest is

(b) Apical dominance as expressed in dictyledonous plants is due to the presence of more..... In the apical bud than in the lateral

ones

(c)In addition to auxin a..... Must be supplied to culture medium to obtain a good callus in plant tissue culture

(d).....of a vegetative plants are the sites of photoperiodic perception.



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2. Plant growth substances (PGS) have innumerable practical applications. Name the PGS you should use to

- (a) Increase yield of sugarcane
- (b) Promote lateral shoot growth
- (c) Cause sprouting of potato tuber
- (d) inhibit seed germination



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



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

(a) Give two functions of this phytohormone

(b) Which property of gibberellin caused foolish seedling disease in rice?



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5. Gibberellins promote the formation of
Flowers on genetically plants in cannabis

whereas n ethylene promotes formationn of ...

flowers on genticall...plants



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6. Classify the following plants into Long-Day Plants (LDP), Short Day Plants (SDP) and Day Neutral Plants (DNP) Xanthium, Henbane (*Hyoscyamus niger*), Spinach, Rice, Strawberry, Bryophyllum, Sunflower, Tomato, Maize.



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7. 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?



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8. Where are the following hormones synthesised in plants?

(a) IAA, (b) Gibberellins, (c) Cytokinins



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9. In botanical gardens and tea gardens, gardeners trim the plants regularly so that they remain bushy. Does this practice have any scientific explanation.



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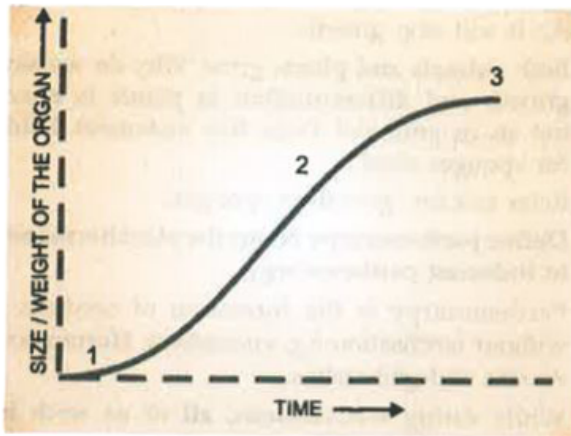
10. Light plays an important role in the life of all organisms. Name any three physiological processes in plants which are affected by light.



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

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12. Growth is one of the characteristic of all living organism? Do unicellular organism also grow? If so what are the parameter?



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13. The rice seedlings infected with fungus *Gibberella fujikuroi* is called foolish seedling? What was the reason behind it?



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Ncert File Ncert Exemplar Problem C Short Answer Type Questions

1. *Nicotiana tabacum*, a short plant, when exposed to more than the critical period of light fails to flower. Explain.



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2. What are the structural characteristics of
(a) meristematic cells near root tip

(b) the cells in the elongation zone of the root



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

? (a) Differentiation,(b) De differenatiation ,(c)

Re- differentiation



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5. Auxins are growth hormones caplable 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 related to auxins

(a) Auxins precursors ,(b) Anti auxins, (c)

Synthetic auxins



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6. The role of ethylene and abscisic acid is both positive and negative justify the statement



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



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



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9. In animals , there are glands secreting hormones , formed ? How are the hormones translocated to the site of activity?



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10. 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 terms is used for such accidental finding



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



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12. In a slide showing different types of cells can you identify which type of the cell may be meristematic and the one which is incapable of dividing and how?



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13. 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))



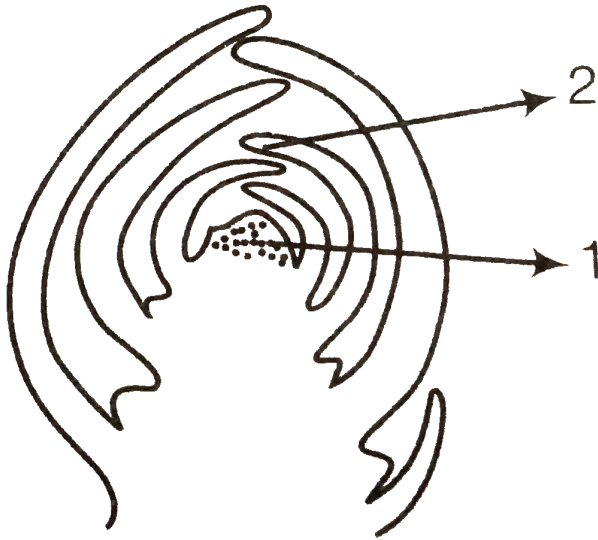
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14. Label the diagram

A. This is which part of a dicotyledonous plants?

B. If we remove part 1 from the plant, what

will happen?



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15. Both animals and plants grow. Why do we say that growth and differentiation in plants is

open and not so in animals? Does this statement hold true for sponges also?



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



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17. While eating watermelons, all of us wish it was seedless,. As a plant physiologist can you

suggeste any method by which this can be achieved .



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18. A gardener finds some broad leaved dicotweeds growing in his lawns what can be done to get rid of the weeds efficiently?



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19. On germination a seed first produces shoots with leaves, flowers appear late

A. why do you think this happens?

B. How is this advantageous to the plant?



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20. Fill in the blanks

A. Maximum growth is observed inphase.

B. Apical dominance is due to

C.initiate rooting

D. Pigment involved in photoperception in flowering plants in



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Ncert File Ncert Exemplar Problem D Long Answer Type Questions

1. Some varieties of wheat are known as spring wheat while others are called winter wheat. Former variety is sown and planted in spring and is 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 growing season. Explain, why?



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2. It is known that some varieties of wheat are sown in autumn but are harvested around next mid summer. What could be the probable reason for this?

B. what term is used for this promotion of

lowering under low temperature?

C. which plant hormone can replace the cold treatment?



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3. Name a hormone which

A. is gaseous in nature

B. is responsible for phototropism

C. induces femaleness in flowers of cucumber

D. is used for killing weeds (dicots)

E. induces flowering in long day plants



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Higher Order Thinking Skills Brain Twisting Very Short Answer Questions

1. What are brassinosteroids?



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2. An anti-ageing plant hormone from the following is



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3. How do gibberellins are able to promote seed germination?



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4. What is the role of salicylic acid as plant growth regulator?



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5. Define bioassay.



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6. Write the names of any two synthetic auxins.



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7. What is the role of jasmonic acid as plant growth regulator?



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Higher Order Thinking Skills Brain Twisting Short Answer Questions

1. What happens, if meristematic cells ever ceases to divide?



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2. Define development.



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3. Whether the growth in plants is definite or indefinite ?



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4. What are antiauxins and free auxins ?



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5. What are precursors and bound auxins ?



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6. Why do cut leaves dipped in cytokinins stay green longer than control leaves ?



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7. The role of ethylene and abscissic acid is both positive and negative justify the statement



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8. What is plant growth inhibitor?



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9. Define photoperiodism.



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10. Differentiate between florigen and other growth hormones





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11. Discuss briefly about abscisic acid.



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12. What are gibberellins ? Write the applications of gibberellins.



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13. Write two functions of auxin?



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14. Differentiate between short day plants and long day plants.



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Higher Order Thinking Skills Brain Twisting Long Answer Questions

1. Name the gaseous plant growth regulator.

Give its functions.



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Quick Memory Test A Say True Or False

1. Geotropism is turgor movement induced by gravity and is shown by stem and root.



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2. Leaf fall reduces transpiration loss.



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3. Growth movements are due to differential (unequal) growth.



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4. Gibberellins cause parthenocarpy in some type of fruits.



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5. Ethylene retards abscission of leaves, flowers and fruits.



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6. Growth is rapid in lag phase.



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



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8. NAA and 2,4-D, inhibits flowering in litchi and pineapple.



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9. By this time, more than 100 different gibberellins have been identified.



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Quick Memory Test B Complete The Missing Links

1. Cell division and _____ are important aspect of growth and development.



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2. Term _____ is applied to Indole acetic acid (IAA) .



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3. _____ of leaves and fruits lead to leaf fall and fruit fall.



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4. IBA stands for





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5. Gibberellin stimulate stem elongation and leaf _____.



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



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7. Ethylene is associated with the process of _____ of plant organ.



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



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9. ABA also acts as hormones.



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10. Gibberellins induce stem elongation in plants.



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11. The movements in *Mimosa pudica* is an example of changes.



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Quick Memory Test C Choose The Correct Alternative

1. Interruption during light period does not inhibit flowering in SDP/LDP.



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2. Bolting/abscission is shown by gibberellins.



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3. In photoperiodism/vernalization the stimulus is perceived by green leaves only.



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4. The growth that make plants thicker is called primary/secondary growth.



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5. Lag/Log phase is the middle phase of growth and is characterised by very fast and rapid growth of plant body.



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6. Auxins/cytokinins show the phenomenon of apical dominance.



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1. What does stationary phase of sigmoid growth curve indicates.



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2. What is the full form of IBA? Also mention its one use in agriculture.



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3. What is full form of IAA?



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4. Name the growth regulator which was isolated from the endosperm of maize.



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5. What is vernalization?



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6. Write two sources of auxins



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7. Name any two synthetic auxins in agriculture.



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8. What induces parthenocarpy in grapes ?



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9. What can induce bolting in cabbage plant ?



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10. What are quiscent seeds ?



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11. Certain plants will flower only when they are exposed to low temperature for a few weeks. What do you call for this requirement ?



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12. Which is the only one gaseous natural plant growth regulator.



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13. Name the phytohormone that can cause the development of seedless fruits.



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14. Why are certain plants such as wheat and mustard cited as example of whole plant senescence?



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15. Name any one function of phytochrome.



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16. Define vernalization.



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17. Why is Abscisic acid called stress hormone in plants?



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18. Name the hormone that makes the plants more tolerant to various stresses.



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19. In a wheat field some broad leaved weed are seen by the farmers, which plant hormone will you suggest to get rid of them ?



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20. Who among the following scientists is related with the identification of cytokinins ?

(a) E. Kurosawa (b) F. Skoog (c) C. Darwin (d)

F.W. Went



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Revision Exercises Short Answer Questions

1. How will you induce lateral branching in a plant which normally does not produce them ?

Give reason in support of your answer.



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2. List any four uses of auxins.



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3. Define senescence in plants. Name its different types.



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4. Describe how auxins are related with bending of shoots towards the source of light.



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5. Mention two roles of gibberelin in plants



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6. Would you expect soyabean plants to flower if given a daily light exposure of 15 hours ?

Give reasons.



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7. Would you expect soyabean plants to flower if given a daily light exposure of 15 hours ?

Give reasons.



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8. How does abscisic acid act antagonistically to auxins and gibberellins?



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9. Which among the following is a long day plant ? Why is it so called ?

Sugar beet, Sugar cane, Tomato



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10. Write the full forms of two synthetic auxins

NAA and IBA. What for are they used ?



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11. What induces ethylene formation in plants?

Give two different actions of ethylene on plants.



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12. What is the effect of each of the following on germination of seeds:

(i) Abscisic acid (ii) Far red region of light



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13. Differentiate between quiescence and dormancy with reference to seed germination.



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14. What is meant by bioassay? Name any two bioassays for auxins.



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15. Name the hormone that acts as an antagonistic to ABA. From which micro-organism was it extracted initially? List the two bioassays of this hormone.



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16. What is meant by abscission? Name the phytohormone involved in it.



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17. List the four ways how the use of auxins may help in obtaining better yield of fruit crops.



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18. Write any four agricultural applications of ethylene.



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19. Name the only gaseous natural plant hormone.



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20. What is differentiation?



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21. Define plasticity



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22. Which parts of plant produce cytokinins?



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23. What is sigmoid growth curve ?



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24. Why ABA is called stress hormone in plants?



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25. What do you mean by apical dominance?

Which hormone controls it?



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26. Give a brief account of photoperiodism.



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27. Where are auxins generally produced in a plant? Name any one naturally occurring plant auxin and any one synthetic auxin.



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28. What is photoperiodism and vernalisation? Describe their significance.



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1. Discuss the role of growth regulators in agriculture.



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2. Define senescence. What are the various types of senescence observed in plants? Can senescence be retarded by growth regulators?



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3. Explain how is flowering considered a phytochrome mediated process? How can flowering be induced in short day plant under long day conditions?



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4. Give a brief account of pattern of plant growth and development as influence by temperature.



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5. Expand the terms:

(a) GA (b) NAA (c) 2-4D (d) 2-4-5T (e) IAA (1) SDP

(g) GA (h) IBA.



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6. Discuss the term- (i) Vernalization (ii) Senescence (iii) Phytochrome (iv) Hypogeal germination.



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7. What are auxins? Discuss the role of auxins in the growth of plants.



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8. The role of ethylene and abscissic acid is both positive and negative justify the statement



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9. (a) Describe the process of photoperiodism.

(b) Write four physiological effects of gibberellins.



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**Competition File Objective Type Questions A
Multiple Choice Questions Mcqs**

1. IAA is derived from or which of the following is involved in the synthesis of a plant hormone

IAA ?

A. Tryptophan

B. Tyrosine

C. Phenylalanine

D. None of these

Answer: A



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2. Internodes elongation is due to :

A. Gibberellin

B. Auxin

C. Cytokinin

D. Abscisic acid

Answer: A



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3. Apical dominance is due to:

A. Auxin

B. Cytokinin

C. Ethylene

D. Gibberellin

Answer: A



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4. Gibberellin causes

A. Apical dominance

B. Flowering

C. Internodal growth

D. Wilting

Answer: C



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5. Vernalization is done at

A. Lower temperature

B. Low light intensity

C. Higher temperature

D. High light intensity

Answer: A



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6. Plants requiring exposure to light for less than the critical photoperiod for flowering are

A. Long day plant

B. Day neutral

C. Intermediate day plant

D. Short day plant

Answer: D



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7. Senescence in leaves can be delayed by applying on them :

A. Indole acetic acid

B. GA

C. Kinetin

D. Ethylene

Answer: C



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8. Seeds of some plants do not germinate even under favourable conditions due to

A. Dormancy

B. Quiescence

C. Vivipary

D. Non-viability

Answer: A



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9. Drooping of Tamarind leaves after sunset is

A. Phototropism

B. Photonasty

C. Phototaxis

D. Chemotaxis

Answer: B



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10. Period between formative phase and maturation phase of plant growth is

A. Grand period of growth

B. Stationary phase

C. Lag phase

D. Phase of elongation

Answer: A



11. The pineapple which under natural condition is difficult to blossom has been made to produce fruits throughout the year by application of

A. IAA, IBA

B. NAA, 2,4-D

C. Phenyl acetic acid

D. Cytokinins

Answer: B



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12. Which of the following is a gaseous hormone?

A. Ethylene

B. Cytokinin

C. Both ethylene and auxin

D. Gibberellin

Answer: A



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13. Cholodny-Went theory is connected with

A. Photomorphogenesis

B. Photoperiodism

C. Phototropism

D. Photorespiration

Answer: C



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14. The hormone present in liquid endosperm is:

A. Cytokinin

B. Gibberellin

C. Ethylene

D. Auxin

Answer: A



15. The phytohormone which induces triple response is

A. IAA

B. ABA

C. GA_3

D. C_2H_4

Answer: D



16. An example of short day plant is

A. Wheat

B. Maize

C. Chrysanthemum

D. Radish

Answer: C



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17. Prechilling treatment to break seed dormancy is

- A. Scarification
- B. Stratification
- C. Impaction
- D. Vernalization

Answer: B



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

- A. Annual plants
- B. Floral parts
- C. Vessels and tracheid differentiation
- D. Leaf abscission

Answer: C



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

A. Indole acetic acid

B. Cytokinins

C. Gibberellins

D. Ethylene

Answer: C



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

- A. Scarification
- B. Vernalization
- C. Chelation
- D. Stratification

Answer: C



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21. Which one of the following plant is LDP?

A. Xanthium

B. Soyabean

C. Wheat

D. Tobacco

Answer: C



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22. Phototropism is due to the hormone

A. IAA

B. GA

C. 2,4-D

D. Cytokinin

Answer: A



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23. Find the correct statements

1. Causal organism of foolish seedling disease is source of gibberellin

2. Ascorbic acid is growth promoter

3. Ratio of auxin to cytokinin controls differentiation

4. Bolting of cabbage can be induced by treatment with IAA

A. 1, 2 and 3 are correct

B. 1 and 2 are correct

C. 2 and 4 are correct

D. 1 and 3 are correct

Answer: D



24. Induction of flowering by low temperature treatment is :

- A. Vernalization
- B. Cryobiology
- C. Photoperiodism
- D. Prunning

Answer: A



25. Which of the following movements in plants is related to the changes in the auxin level?

A. Movement of shoot towards source of light

B. Nyctinasty

C. Movement of sunflower towards sun

D. All of the above

Answer: A



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26. Coconut water is rich in

- A. Auxins
- B. Gibberellins
- C. Abscisic acid
- D. Cytokinin

Answer: D



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27. Ripening of fruit is controlled by :

A. Ethylene

B. Gibberellin

C. Auxin

D. Cytokinin

Answer: A



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28. One of the synthetic auxin is

A. NAA

B. IAA

C. GA

D. IBA

Answer: A



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

A. Indole butyric acid

B. Indole-3-acetic acid

C. Gibberellic acid

D. Abscisic acid

Answer: D



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30. The phenomenon of vernalization can be seen in :

A. Sugarbeet

B. Cabbage

C. Carrot

D. All of these

Answer: D



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31. Coconum milk stimulates cell division in callus as it is a rich source of:

A. Auxin

B. Cytokinin

C. Gibberellin

D. Ethylene

Answer: B



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32. The study of phototropic response lead to the discovery of

A. Cytokinin

B. Gibberellin

C. Ethylene

D. Auxin

Answer: D



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33. Bolting may be induced by

A. Gibberellin

B. ABA

C. Auxin

D. Cytokinin

Answer: A



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34. Day neutral plant relates to

- A. Loss of activity during daytime
- B. Over active during daytime
- C. Flowering in all possible photoperiod
- D. No flowering in any photoperiod

Answer: C



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35. Auxanometer is used to measure

- A. The growth in length of a plant organ
- B. The growth in breadth of a plant organ
- C. Population of the pests attacking a plant
- D. Both (a) and (b)

Answer: A



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36. Internodal elongation is associated with:

A. Auxin

B. Cytokinin

C. Gibberellin

D. ABA

Answer: C



Watch Video Solution

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

- A. Apical dominance
- B. Flowering
- C. Closure of stomata
- D. Fruit elongation

Answer: B



Watch Video Solution

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

A. Zeatin

B. Ethylene

C. ABA

D. IAA

Answer: C



Watch Video Solution

39. Vernalization stimulates flowering in

A. Zamikand

B. Turmeric

C. Carrot

D. Ginger

Answer: C



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

A. Auxin

B. Gibberellic acid

C. Kinetin

D. Ethylene

Answer: B



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41. Which of the following is not a physiological effect/ an influence of auxin

A. Initiates rooting in stem cuttings

B. Promotes flowering

C. Prevents fruit and leaf drop at early stages

D. Promotes bolting

Answer: D



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42. One hormone is used to speed up the malting process in barley, another is used to promote flowering in pineapple, while the third helps in the delay of leaf senescence.

These are respectively

A. Auxin, gibberellin and cytokinin

B. Gibberellin, cytokinin and auxin

C. Gibberellin, auxin and cytokinin

D. Cytokinin, auxin and gibberellin

Answer: C



[Watch Video Solution](#)

43. Cell division in plants is promoted by:

A. Abscisic acid

B. Gibberellin

C. Ethylene

D. Cytokinin

Answer: D



[Watch Video Solution](#)

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

A. Abscisic acid

B. Ethylene

C. GA_3

D. Indole acetic acid

Answer: A



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45. F. Went noted that if coleoptile tips were removed and placed on agar for an hour, the agar would produce a bending when placed on one side freshly cut coleoptile stumps. Of what significance is this experiment ?

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: A



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46. To induce formation of organs in a callus it is necessary to provide

A. Growth hormones

B. Water

C. Soil

D. Antibiotics

Answer: A



Watch Video Solution

47. The hormone that promotes rapid elongation of intermodes or leaf base in deep water rice plant is

A. Abscisic acid

B. Ethylene

C. Cytokinin

D. Gibberellin

Answer: B



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48. One hormone hastens maturity period in juvenile conifers, a second hormone control xylem differentiation , while the third

increases the tolerance of plants to various stresses they are respectively

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

Answer: C



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49. Auxin can be bioassayed by

A. Potometer

B. Lettuce hypocotyl elongation

C. Avena coleoptile curvature

D. Hydroponics

Answer: C



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50. You are given a tissue with its potential for differentiation in an artificial culture. Which of the following pairs of hormones would you add to the medium to secure shoots as well as roots

- A. Auxin and abscisic acid
- B. Gibberellin and abscisic acid
- C. LAA and gibberellin
- D. Auxin and cytokinin

Answer: D



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

- A. Ethylene
- B. Auxins
- C. Gibberellic acid
- D. Cytokinins

Answer: B



Competition File Objective Type Questions B Cbse Pmt Main Examination Questions

1. (i) Who discovered photoperiodism?

(ii) Who gave the term phytochrome? What is its unique character?

(iii) Given three methods of seed dormancy.

(iv) Short out the e.g., of SDP and LDP from following.

(a) Radish (b) Spinach (c) Bryophyllum (d) Rice

(e) Oat (f) Chrysanthemum



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Competition File Objective Type Questions C Matching Type Questions

1. Match the terms in Column A with suitable terms in Column B:

Column A	Column B
(i) Photoperiodism	a. Vernalization
(ii) ABA	b. Pulvinus
(iii) Low temperature	c. Geotropism
(iv) <i>Mimosa</i>	d. Garner and Allard
(v) Gravity	e. Senescence
(vi) <i>Fusarium moniliformae</i>	f. Photonastic
	g. Gibberellin



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Competition File Objective Type Questions D

Assertion Type Questions

1. Assertion : Living beings show growth.

Reason: It is due to metabolic changes in living beings.

A. If both Assertion and Reason are true and the Reason is a correct explanation of the Assertion.

B. If both Assertion and Reason are true but the Reason is not a correct

explanation of the Assertion.

C. If Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: A



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2. Assertion : Maintenance of ratio between growth rates of different parts is called allometric growth.

Reason: The growing shoot tip follows a helical path and the phenomenon is called circummutation.

A. If both Assertion and Reason are true and the Reason is a correct explanation of the Assertion.

B. If both Assertion and Reason are true but the Reason is not a correct explanation of the Assertion.

C. If Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: B

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3. Assertion : Mobilisation of stored food in germinating seeds is triggered by gibberellins.

Reason: In embryo of seed, gibberellins are produced during seed germination.

A. If both Assertion and Reason are true and the Reason is a correct explanation of the Assertion.

B. If both Assertion and Reason are true but the Reason is not a correct explanation of the Assertion.

C. If Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: A



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4. Assertion: The respiratory activity in cell maturation phase as compared to other phases is less.

\ Reason: If total growth is plotted against time, the curve obtained is known as S-shaped curve.

A. If both Assertion and Reason are true and the Reason is a correct explanation of the Assertion.

B. If both Assertion and Reason are true but the Reason is not a correct explanation of the Assertion.

C. If Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: B



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5. Assertion : Parthenogenetic fruits are prepared by spraying abscisic acid.

Reason: Abscisic acid produces seedless fruits.

A. If both Assertion and Reason are true and the Reason is a correct explanation of the Assertion.

B. If both Assertion and Reason are true but the Reason is not a correct explanation of the Assertion.

C. If Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: D



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6. Assertion : Gibberellin was first extracted from fungi.

Reason: Gibberella fujikuroi is a fungus.

A. If both Assertion and Reason are true and the Reason is a correct explanation of the Assertion.

B. If both Assertion and Reason are true but the Reason is not a correct explanation of the Assertion.

C. If Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: A



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7. Assertion : Cytokinins lead to retention of chlorophyll and delay the senescence in leaves.

Reason: cytokinins are only responsible for root primordia formation.

A. If both Assertion and Reason are true and the Reason is a correct explanation of the Assertion.

B. If both Assertion and Reason are true but the Reason is not a correct explanation of the Assertion.

C. If Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: C



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8. Assertion : Seeds require water for germination.

Reason: Water is the most important requirement for germination of seeds.

A. If both Assertion and Reason are true and the Reason is a correct explanation of the Assertion.

B. If both Assertion and Reason are true but the Reason is not a correct explanation of the Assertion.

C. If Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: A



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9. Assertion : In plants during water stress and drought conditions, ABA plays an important role.

Reason: When ABA is applied exogenously, it leads to stomatal opening.

A. If both Assertion and Reason are true and the Reason is a correct explanation of the Assertion.

B. If both Assertion and Reason are true but the Reason is not a correct explanation of the Assertion.

C. If Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: B



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10. Assertion: When terminal bud is removed, lateral branches sprout out.

Reason: In terminal bud, auxins in higher concentration checks the growth of next axial buds.

A. If both Assertion and Reason are true and the Reason is a correct explanation of the Assertion.

B. If both Assertion and Reason are true but the Reason is not a correct explanation of the Assertion.

C. If Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: A



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11. Assertion : Crescograph was invented by Sir J.C. Bose.

Reason: Crescograph can magnify the growth upto 10,000 times.

A. If both Assertion and Reason are true and the Reason is a correct explanation of the Assertion.

B. If both Assertion and Reason are true but the Reason is not a correct explanation of the Assertion.

C. If Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: A



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12. Assertion : When a pot containing a plant is put in an inverted position for a long time, roots move downwards and stem upwards.

Reason: This is due to negative geotropism of root and positive geotropism of stem.

A. If both Assertion and Reason are true and the Reason is a correct explanation of the Assertion.

B. If both Assertion and Reason are true but the Reason is not a correct

explanation of the Assertion.

C. If Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: C



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13. Assertion: The movements of roots in relation to water is termed as hydrotropism.

Reason: Plant movements in response to

moisture are known as hygroscopic movements.

A. If both Assertion and Reason are true and the Reason is a correct explanation of the Assertion.

B. If both Assertion and Reason are true but the Reason is not a correct explanation of the Assertion.

C. If Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: B



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14. Assertion : Plant movements induced by external stimuli are known as autonomic movements.

Reason: Seismonastic movements are shown by crows.

A. If both Assertion and Reason are true and the Reason is a correct explanation of the Assertion.

B. If both Assertion and Reason are true but the Reason is not a correct explanation of the Assertion.

C. If Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: D



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15. Assertion : In fruits and leaves, abscission zone is formed at the point of attachment with peduncle and stem.

Reason: In abscission zone, a cavity is present which makes it comparatively weaker.

A. If both Assertion and Reason are true and the Reason is a correct explanation of the Assertion.

B. If both Assertion and Reason are true but the Reason is not a correct explanation of the Assertion.

C. If Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: C



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16. Assertion : Plants bend towards the light.

Reason: This is due to unequal distribution of auxins on illuminated and darker side of stem.

A. If both Assertion and Reason are true and the Reason is a correct explanation of the Assertion.

B. If both Assertion and Reason are true but the Reason is not a correct explanation of the Assertion.

C. If Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: A



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17. Assertion. Plants also have hormones called phyto-hormones. Reason. They increase the rate of reactions and thus always accelerate growth and other related changes

A. If both Assertion and Reason are true and the Reason is a correct explanation of the Assertion.

B. If both Assertion and Reason are true but the Reason is not a correct explanation of the Assertion.

C. If Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: C



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18. Assertion . Senescence is the time when age associated defects are manifested

Reason . Certain genes may be undergoing sequential switching on and off during one's life

A. If both Assertion and Reason are true and the Reason is a correct explanation of the Assertion.

B. If both Assertion and Reason are true but the Reason is not a correct explanation of the Assertion.

C. If Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: A



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Competition File Objective Type Questions E

Analogy Type Questions

1. Albizzia : Nyctinastic :: Oxalis :



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2. Bean : Epigeal :: Gram :



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3. Cocklebur : Short day plant :: Tomato :



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4. Photoperiodism : Florigen :: Vernalization

.....



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5. Leaf : Photoperiodism :: Meristem :.....



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6. Senescence takes place in all non-meristematic cells.



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7. Auxillary buds usually fail to sprout in actively growing herbaceous plants.



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8. Plants show flower in specific seasons of summer and winter.



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9. Germinating seeds with stored fats contain plenty of glyoxysomes.



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10. Telegraph plant (*Desmodium gyrans*) exhibit autonomic curvature.



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11. Tertiary roots are plageotropic.



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12. Photoperiodism is effect of relative day length on flowering.



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13. Gibberellic acid induces reversal of dwarfism in genetically dwarf plants.



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14. IAA is not the only naturally occurring auxin.



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Competition File Objective Type Questions F Reasoning Type Questions

1. Gibberellins increase the longitudinal growth in intact plants.



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Competition File Objective Type Questions G Additional Multiple Choice Questions Choose The Correct Answer

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

A. Indole acetic acid

B. Cytokinins

C. Gibberellins

D. Ethylene

Answer: A



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2. 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 light and did not produce flower. Under which one of the following categories will you place this plant

A. Day neutral

B. Short day

C. Long day

D. Darkness neutral

Answer: B



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3. Induction of flowering by low temperature in plants is

A. Cryoscopy

B. Cryostat

C. Vernalization

D. Photoperiodism

Answer: C



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4. Gibberellins can promote seed germination because of their influence on

A. Rate of cell division

B. Production of hydrolyzing enzymes

C. Synthesis of abscissic acid

D. Absorption of water through hard seed coat

Answer: B



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5. Opening of floral buds into flowers, is a type of :

A. Paratonic movement of locomotion

B. Paratonic movement of growth

C. Autonomic movement of growth

D. Autonomic movement of locomotion

Answer: C



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

A. Gibberellic acid - Leaf fall

B. Cytokinin -Cell division

C. IAA-Cell wall elongation

D. Abscissic acid - Stomatal closure

Answer: A



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

A. 680 nm

B. 720 nm

C. 620 nm

D. 640 nm

Answer: A



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8. Foolish seedling disease of rice led to the discovery of

A. ABA

B. 2-4 D

C. IAA

D. GA

Answer: D



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9. Short day plant is

A. Xanthium

B. Pisum

C. Cucumis

D. Avena

Answer: A



Watch Video Solution

10. A hormone delaying senescence is :

A. Auxin

B. Cytokinin

C. Ethylene

D. Gibberellin

Answer: B



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11. Intercalary meristem results in

- A. Secondary growth
- B. Primary growth
- C. Apical growth
- D. Lateral growth

Answer: B



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12. Gibberellin was first discovered from a

A. Algae

B. Fungi

C. Bacteria

D. Roots of higher plants

Answer: B



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13. Morphogenesis in plants is controlled by:

(a) Auxins (b) Gibberellins (c) Cytokinins (d)

Abscisic acid

Codes:

A. (a), (b) and (c) are correct

B. (a) and (b) are correct

C. (b) and (d) are correct

D. (a) and (c) are correct

Answer: D



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14. A hormone delaying senescence is :

A. Auxin

B. Cytokinin

C. Ethylene

D. Gibberellin

Answer: B



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15. Removal of apical (terminal) bud of a flowering plant (or pruning of a flowering plant) leads to

A. Formation of new apical buds

B. Formation of adventitious roots on the cut side

C. Early flowering (or stopping of floral growth)

D. Promotion of lateral branches

Answer: D



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16. Coconut milk (coconut water) is widely used in tissue culture because it contains :

A. Auxins

B. Ethylene

C. Cytokinin

D. Gibberellins

Answer: C



Watch Video Solution

17. Which method out of the following renders the seed coat permeable to water so that embryo expansion is not physically retarded :

A. Stratification

B. Denudation

C. Vernalization

D. Scarification

Answer: D



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18. 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 light 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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19. The maximum growth rate occurs in

A. Stationary phase

B. Senescent stage

C. Lag phase

D. Exponential phase

Answer: D



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

A. Indole acetic acid

B. Cytokinins

C. Gibberellins

D. Ethylene

Answer: C



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21. What is the site of perception of photoperiod necessary for induction of flowering in plants? Leaves

A. Lateral buds

B. Pulvinus

C. Shoot apex

D. Leaves

Answer: D



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**Competition File Objective Type Questions
Multiple Choice Questions Mcqs**

1. It takes very long time for pineapple plants to produce flowers. Which combination of hormones can be applied to artificially induce flowering in pineapple plants throughout the year to increase yield?

A. Auxin and Ethylene

B. Gibberellin and Cytokinin

C. Gibberellin and Abscisic acid

D. Cytokinin and Abscisic acid

Answer: C



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Chapter Practice Test

1. Name the hormone which brings about internodal elongation ?



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2. It is recommended to farmers to use 2-4 D in field of wheat crop. Why?



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3. Which hormone is involved in photoperiodism?



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4. What is the plant organ responsible for the perception of light variation for flowering? Name the pigment which receives this perception.



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5. Light plays an important role in the life of all organisms. Name any three physiological processes in plants which are affected by light.

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6. Why do cut leaves dipped in cytokinins stay green than control leaves?

 [Watch Video Solution](#)

7. What is the role of gibberellins in promotion of seed germination?



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8. Where the IAA and gibberellins are synthesized in plants?



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9. Name the plant hormones concerned with following activities:

(a) Promotion of cell division (b) Promotion of flowering (c) Inhibition of seed germination



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10. Differentiate between florigen and other growth hormones



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11. Differentiate between SDP and LDP.



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12. Differentiate between photoperiodism and vernalization.



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13. What are auxins? Name different types of auxins. Discuss the functions and applications

of auxins.



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Chapter Practice Test Section A

1. Removal of apical (terminal) bud of a flowering plant (or pruning of a flowering plant) leads to

A. Formation of new apical buds

B. Formation of adventitious roots on the cut side

C. Early flowering (or stopping of floral growth)

D. Promotion of lateral branches

Answer:



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2. Coconut milk (coconut water) is widely used in tissue culture because it contains:

- A. Auxins
- B. Ethylene
- C. Cytokinin
- D. Gibberellins

Answer:



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3. What is Hydroponics?



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4. 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 light 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:



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5. The maximum growth rate occurs in

A. Stationary phase

B. Senescent stage

C. Lag phase

D. Exponential phase

Answer:



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

A. Indole acetic acid

B. Cytokinins

C. Gibberellins

D. Ethylene

Answer:



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Chapter Practice Test Section B

1. Light plays an important role in the life of all organisms. Name any three Physiological

porcesses in plants which are affected by light.



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2. What is the plant organ responsible for the perception of light variation for flowering?

Name the pigment which receives this perception.



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3. Why do cut leaves dipped in cytokinins stay green than control leaves?



[Watch Video Solution](#)

4. What is the role of gibberellins in promotion of seed germination?



[Watch Video Solution](#)

Chapter Practice Test Section C

1. Where are the following hormones synthesised in plants?

(a) IAA, (b) Gibberellins, (c) Cytokinins



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2. Auxins initiate as well as promote cell division in tissues like cambium. Auxins stimulate cell elongation also. Auxin is thought to cause the walls to become plastic and due to endosmosis cell elongates.

Answer the following:

(a) Why auxins are being used as weedicide?

(b) How auxins are helpful in production of parthenocarpic fruits?



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3. Name the plant hormones concerned with following activities:

(a) Promotion of cell division

(b) Promotion of flowering

(c) Inhibition of seed germination



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4. What is the difference between 'florigen' and other growth hormones ?



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Case Based Short Answer Type Questions

1. (i) Who discovered photoperiodism?

(ii) Who gave the term phytochrome? What is its unique character?

(iii) Give three methods of seed dormancy.

(iv) Short out the e.g., of SDP and LDP from following.

(a) Radish (b) Spinach (c) Bryophyllum (d) Rice

(e) Oat (f) Chrysanthemum



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