

7. PLANT GROWTH AND MINERAL NUTRITION

MULTIPLE CHOICE QUESTIONS (1 MARK EACH)

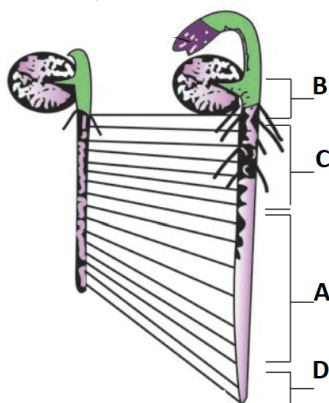
- 1 A farmer is fed up of weeds in his Wheat farm. Which of the following chemicals he can use to overcome the problem?
A IBA
B IAA
C NAA
D 2,4 – D
- 2 Gibberellins are synthesised from _____.
A Acetic acid
B Mevalonic acid
C Tryptophan
D Ethephon
- 3 First natural cytokinin was obtained from _____.
A Rice plants
B Tobacco callus
C Maize grains
D Human urine
- 4 The plant growth is oftenly described as localized due to
A. Meristem
B. Permanent tissue
C. Parenchyma only
D. Xylem only
- 5 Actual visible growth is seen during
A. phase of division
B. phase of maturation
C. phase of cell elongation
D. phase of differentiation
- 6 The correct equation for arithmetic growth is
A. $L_t = L_0 + rt$
B. $W_1 = W_0 \cdot e^{rt}$
C. $L_0 = L_t + rt$
D. $L_0 = W_0 \cdot e^{rt}$
- 7 The tissues formed by redifferentiation are
A. Secondary xylem and Secondary epidermis
B. Secondary meristem
C. Primary xylem and primary phloem
D. Secondary xylem and secondary phloem
- 8 Loss or non-development of chlorophyll resulting in yellowing of leaf is called as
A. Stunting
B. necrosis
C. Chlorosis
D. Mottling
- 9 The element required in phosphorylation reaction is
A. P
B. Ca
C. Fe.
D. Mo
- 10 Nitrification is not carried out by the bacterium
A. *Nitrosomonas* B. *Nitrosococcus*
C. *Nitrobacter* D. *E. coli*

VERY SHORT ANSWER TYPE QUESTIONS (1 MARK EACH)

- 1 What do you mean by indeterminate growth?
- 2 In which phase maximum growth is achieved?
- 3 What is the use of auxanometer?
- 4 Define dedifferentiation.
- 5 Buyers often complain that a particular fruit merchant uses some chemical to ripen fruits in his shop.
Name the chemical he must be using to do so.
- 6 Why is ABA known as antitranspirant?
- 7 Name the tissue that transports hormones within the plant body?
- 8 What is critical photoperiod?
- 9 Which pigment receives stimulus of light for flowering?
- 10 Which chemical stimulates vernalization?
- 11 What is critical concentration?
- 12 Which enzyme is activated by iron?
- 13 What is the site of nitrogen fixation in BGA?
- 14 Name the enzyme used in transamination?
- 15 Name the element that plays major role in determination of solute concentration.

SHORT ANSWER TYPE QUESTIONS(SA-I) (2 MARKS)

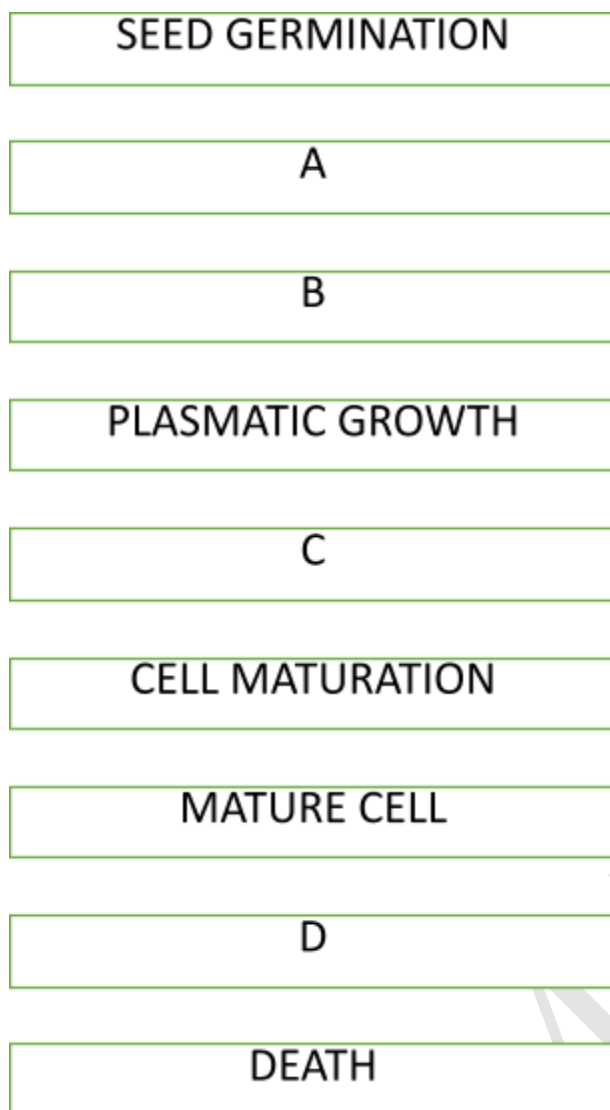
- 1 What type of changes take place during elongation phase?
- 2 Identify A,B,C and D in the given diagram,



- 3 Give any two points of difference between exponential and sigmoid growth curve.

4

Complete the given flowchart for development.



5 Differentiate between SDP and LDP.

6 Give an account of vernalization.

7 Explain any two deficiency symptoms of mineral found in plants.

8 Describe the process of amino acid synthesis.

9 Match the column A with B

A

i) Epinasty of flower

ii) Natural auxin

iii) Flowering in Litchi

iv) Bolting of Beet

B

a)GA3

b)NAA

c)IAA

d)Ethylene

10 A gardener wants to give bushy appearance to plants in our college campus.

i) What should he do to achieve the same?

ii) Which property of phytohormones he must be aware of?

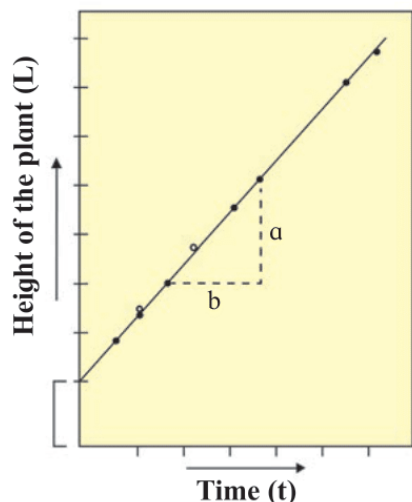
11 Give an account of nitrification.

12 Mention various functions of phosphorus in plants.

13. Different elements are required by the plant for its growth and development. These are absorbed in various forms. Some elements are mentioned below, write the form in which they are absorbed, Boron, molybdenum, phosphorus and nitrogen

SHORT ANSWER TYPE QUESTIONS(SA-II) (3 MARKS EACH)

- 1 Explain various phases of growth.
- 2 Observe the following graph and answer the following questions:-



- i. Which type of growth is indicated in the graph?
- ii. What is the mathematical expression for this growth?
- iii. Which plant part shows such type of growth?
- 3 Give the term for the following)
- a. Parenchyma in hydrophytes develops schizogenous interspaces for support and aeration-
- b. Development if interfascicular cambium
- c. Formation of secondary xylem and secondary phloem
- 4 Give an account of denitrification.
- 5 Draw a well labelled diagram of sigmoid growth curve.
What is grand period of growth?
- 6 Match the columns based on element and its role in plants.

Column 'a'	Column 'b'
1. Molybdenum	a. grey spots on leaves
2. Zinc	b. Brown heart disease
3. Copper	c. slight retardation of growth
4. Boron	d. Die back of shoots
5. Chlorine	e. Poor growth of plant
6. Manganese	f. malformed leaves.

- 7 Explain the concept of plasticity with suitable diagrams.
- 8 Give an account of Donnan's equilibrium.
- 9 Write the name of _____
- a) First hormone discovered in plants.
- b) Biological name of fungus from which Gibberellins were first isolated.
- c) The name given to the first cytokinin by Skoog and Miller.
- 10 Write the name of _____
- a) Gaseous growth hormone known to you.
- b) Standard bio assay method for auxins.
- c) Hormone that can overcome the requirement of vernalization.
- d)

LONG ANSWER TYPE QUESTIONS (LA) (4 MARKS)

- 1** Write a note on photoperiodism with suitable examples.
- 2** Draw schematic representation of nitrogen cycle.
- 3** Name the phytohormone related with the given phenomenon
 - a) Apical dominance
 - b) Bolting of Cabbage
 - c) Artificial ripening of fruit
 - d) Acts as Antitranspirant by closing stomata
- 4** Write full form of-
 - a) IAA
 - b) IBA
 - c) NAA
 - d) 2,4-D