



B.Sc. (Part—III) Semester—V Examination

BOTANY

(Plant Physiology and Ecology)

Time : Three Hours]

[Maximum Marks : 80

Note :— (1) There are **SEVEN** questions in all.

(2) Question No. 1 is compulsory and carries **8** marks.

(3) Question Nos. 2 to 7 carry equal marks.

(4) Draw well labelled diagrams wherever necessary.

1. (a) Fill in the blanks :

(i) The first stable product in C_4 cycle is _____. $\frac{1}{2}$

(ii) The phenomenon of inducing flowering using chilling treatment is known as _____. $\frac{1}{2}$

(iii) _____ is edaphic factor in ecology. $\frac{1}{2}$

(iv) The movement that takes place in response to gravity is called as _____. $\frac{1}{2}$

(b) Choose correct alternatives (MCQ) :

(v) CAM pathway was first time reported in :

- | | | |
|---------------|------------------|---------------|
| (a) Cactaceae | (b) Fabaceae | |
| (c) Araceae | (d) Crassulaceae | $\frac{1}{2}$ |

(vi) Presence of air chambers in internal structure of leaf and stem is character of :

- | | | |
|-----------------|----------------|---------------|
| (a) Hydrophytes | (b) Xerophytes | |
| (c) Mesophytes | (d) Halophytes | $\frac{1}{2}$ |

(vii) The end product of glycolysis is :

- | | | |
|-----------------|------------------|---------------|
| (a) Oxalic acid | (b) Pyruvic acid | |
| (c) Citric acid | (d) Fumaric acid | $\frac{1}{2}$ |

(viii) _____ is responsible for ripening of fruit.

- | | | |
|----------------|--------------|---------------|
| (a) Auxin | (b) GA_3 | |
| (c) Cytokinins | (d) Ethylene | $\frac{1}{2}$ |

(c) Answer in **one** sentence each :

(ix) Define respiratory quotient. 1

(x) Define phototropism. 1

(xi) Define ecology. 1

(xii) What is guttation ? 1



(a) Osmosis		
(b) Passive water absorption		4
(c) Types of Transpiration.		4
OR		
(d) Plasmolysis		4
(e) Starch sugar hypothesis		4
(f) Carrier concept.		4
3. Give detail account of Calvin cycle.		12
OR		
Describe the account on Glycolysis.		12
4. Comment on :		
(g) Sources of N_2		4
(h) Growth phases		4
(i) Applications of Auxins.		4
OR		
(j) Nitrate reductase		4
(k) Ethylene		4
(l) Symbiotic N_2 fixation.		4
5. Comment on :		
(m) Concept of florigen		4
(n) Tropic movements		4
(o) Response of plants to water stress.		4
OR		
(p) Vernalization		4
(q) Long day plants		4
(r) Response of plants to salinity stress.		4
6. Comment on :		
(s) Water as ecological factor		4
(t) Structure of atmosphere		4
(u) Anatomical adaptation of hydrophytes.		4
OR		
(v) Light as ecological factor		4
(w) Process of soil formation		4
(x) Morphological adaptation of xerophytes.		4
7. Define ecosystem. Discuss structural components and functions in pond ecosystem.		12
OR		
(i) Hydrosere		6
(ii) Natality and Mortality.		6