

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 C₄ cycle is _____. ½
(ii) The phenomenon of inducing flowering using chilling treatment is known as _____. ½
(iii) _____ is edaphic factor in ecology. ½
(iv) The movement that takes place in response to gravity is called as _____. ½

(b) Choose correct alternatives (MCQ) :

- (v) CAM pathway was first time reported in :
(a) Cactaceae (b) Fabaceae
(c) Araceae (d) Crassulaceae ½
- (vi) Presence of air chambers in internal structure of leaf and stem is character of :
(a) Hydrophytes (b) Xerophytes
(c) Mesophytes (d) Halophytes ½
- (vii) The end product of glycolysis is :
(a) Oxalic acid (b) Pyruvic acid
(c) Citric acid (d) Fumaric acid ½
- (viii) _____ is responsible for ripening of fruit.
(a) Auxin (b) GA₃
(c) Cytokinins (d) Ethylene ½

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

- (ix) Define respiratory quotient. 1
(x) Define phototropism. 1
(xi) Define ecology. 1
(xii) What is guttation ? 1

2. Comment on :
- (a) Osmosis 4
 - (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