

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

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|-----------|--|----|
| (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 |