

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 No. 2 to 7 carry equal marks.
 (4) Draw a well labelled diagram wherever necessary.

1. (a) Fill in the blanks :—

- (i) The first stable compound in C₃ cycle is _____ . ½
 (ii) The _____ hormone was first time extracted from fungus *Gibberella fujikuroi*. ½
 (iii) The movement that takes place in response to light is called _____ movement. ½
 (iv) _____ and abiotic components are the main part of ecosystem. ½

(b) Choose correct alternative (MCQ) :—

- (v) Guttation takes place through : ½
 (a) Hydathode (b) Stomata
 (c) Lenticel (d) Cuticle
- (vi) CAM pathway was first reported in family : ½
 (a) Orchidaceae (b) Cactaceae
 (c) Crassulaceae (d) Verbenaceae
- (vii) *Nymphaea*, *Trapa*, *Nelumbo* show ecological adaptations : ½
 (a) Epiphytic (b) Mesophytic
 (c) Xerophytic (d) Hydrophytic

- (viii) The phenomenon of photoperiodism was discovered by : ½
- (a) Brain (b) Garner and Allard
- (c) Wetlensick (d) Melvin Calvin
- (c) Answer in one sentence :
- (ix) Define Osmosis. 1
- (x) What is respiratory quotient ? 1
- (xi) Define geotropism. 1
- (xii) What is Natality ? 1
2. Comment on :—
- (a) Plasmolysis 4
- (b) Passive absorption to water. 4
- (c) Ion-Exchange Theory. 4
- OR**
- (d) Diffusion. 4
- (e) Transpiration pull theory. 4
- (f) Starch sugar hypothesis. 4
3. Give detail account of cyclic and non-cyclic photophosphorylation. 12
- OR**
- (g) Explain Glycolysis. 6
- (h) Respiratory quotient. 6
4. Comment on :—
- (i) Sources of nitrogen. 4
- (j) Physiological role of Gibberellins. 4
- (k) Growth curve. 4
- OR**
- (l) Symbiotic nitrogen fixation. 4
- (m) Physiological role of cytokinins 4
- (n) Abscission. 4

5. Comment on :—
- (o) Short day plants. 4
 - (p) Scismonastic movement. 4
 - (q) Salinity stress. 4

OR

- (r) Role of phytochrome. 4
- (s) Vernalization. 4
- (t) Phototropic movement. 4

6. Comment on :—
- (u) Scope of ecology. 4
 - (v) Composition of atmosphere. 4
 - (w) Morphological adaptations of Xerophytes. 4

OR

- (x) Soil profile 4
- (y) Climatic factor-temperature. 4
- (z) Anatomical adaptations in hydrophytes. 4

7. Describe :—
- (a) Hydrosere. 6
 - (b) Natality and Mortality. 6

OR

- (c) Xerosere 6
- (d) Pond ecosystem. 6

