B.Sc. Part—III Semester—V Examination
BOTANY
(Plant Physiology & 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 :

(1) Light reaction of photosynthesis takes place in _____ region of chloroplast.

(2) The movements in plants occurred in response to gravity stimulus is known as _____.

(3) The percentage of Nitrogen in atmosphere is _____.

(4) Non living components of ecosystem are called as _____. ½×4=2

(B) Choose correct alternative (MCQ) :

(5) The phenomenon of inducing flowering using chilling treatment is known as :

(a) Photoperiodism (b) Vernalization

(c) Phototropism (d) Abscission

(6) _____ is responsible for seed germination.

(a) Cytokinin (b) Auxin

(c) Gibberellins (d) ABA

(7) Swelling of dry seeds in water is :

(a) Absorption (b) Plasmolysis

(c) Diffusion (d) Imbibition

(8) The end product of glycolysis is :

(a) Malic acid (b) Ethanol

(c) Pyruvic acid (d) Citric acid ½×4=2

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

(9) Define photoperiodism.

(10) What is photolysis of water ?

(11) Write the name of hydrophytic plants (any two).

(12) Define food web. 1×4=4

2. Explain :

(a) Diffusion 4

(b) Transpiration pull theory 4

(c) Career concept. 4

OR

(d) Starch sugar hypothesis 4

(e) Plasmolysis 4

(f) Ion exchange. 4

3. Describe :

(g) C_3 cycle 4

(h) Photosynthetic pigments 4

(i) Krebs cycle (Schematic representation only) 4

OR

(j) Non-cyclic photophosphorylation (only scheme) 4

(k) Mitochondria as a respiratory centre 4

(l) Electron transport system. 4

4. Explain symbiotic nitrogen fixation and add note on role of nitrate reductase. 12

OR

Explain :

(a) Physiological role of Auxin and Cytokinin. 6

(b) Physiology of senescence. 6

5. Explain :

(m) Long day plant 4

(n) Phototropic movement 4

(o) Salinity stress. 4

OR

(p) Concept and significance of Vernalization 4

(q) Nastic movement 4

(r) Phytochrome. 4

6. Describe :

(s) Composition of atmosphere 4

(t) Soil biota 4

(u) Light as ecological factor. 4

OR

(v) Process of soil formation 4

(w) Morphological adaptations in hydrophytes 4

(x) Water as ecological factor. 4

7. What is ecological succession ? Explain hydrosere and xerosere. 12

OR

(y) Desert ecosystem 6

(z) Density and abundance. 6