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) Q. **1** is compulsory and carries 8 marks.
(3) Q. **2** to **7** carry equal marks.
(4) Draw well labelled diagram wherever necessary.

1. (A) Fill in the blanks :—
(i) _____ is called as power house of cell. ½
(ii) Minute apertures present on leaf surface and involved in transpiration are ____. ½
(iii) The percentage of oxygen in atmosphere is _____. ½
(iv) The symbiotic nitrogen fixing bacterium in Leguminous plant is _____. ½

(B) Choose correct alternatives (MCQ) :—
(v) Grana is a part of following cell organelle : ½
(a) Mitochondria (b) Ribosome
(c) Chloroplast (d) Endoplasmic Reticulum

(vi) Upper most layer of soil profile is : ½
(a) 'O' horizon (b) 'A' horizon
(c) 'B' horizon (d) 'C' horizon

(vii) The green plants are playing role of _____ in an ecosystem. ½
(a) Decomposers (b) Producers
(c) Consumers (d) Reducers

(viii) R.Q. value of Carbohydrate is _____. ½
(a) Zero (b) Unity
(c) More than unity (d) Less than unity

(C) Answer in one sentence :—
(ix) Define anaerobic respiration. 1
(x) What is hydrosere ? 1
(xi) Mention types of transpiration. 1
(xii) Name any two abiotic components of ecosystem. 1

2. Explain the following :—
(a) Passive water absorption. 4
(b) Starch—sugar conversion hypothesis. 4
(c) Osmosis. 4

OR

(d) Significance of transpiration. 4
(e) Ion-exchange theory 4
(f) Plasmolysis. 4

3. Describe in detail Kreb's Cycle. 12

OR

Describe in detail HSK pathway. 12

4. Explain :—

(a) Ethylene 4

(b) Physiological Role of auxin (any two) 4

(c) Sources of Nitrogen to plants 4

OR

(d) Role of nitrate reductase 4

(e) Phases of Growth 4

(f) Senescence. 4

5. Explain :—

(a) Long day plants 4

(b) Vernalization 4

(c) Phototropic movement 4

OR

(d) Seismonastic movement 4

(e) Role of Phytochrome 4

(f) Salinity stress. 4

6. Describe in detail morphological and anatomical adaptation in Hydrophyte. 12

OR

Explain :—

(a) Light as ecological factor. 6

(b) Process of soil formation. 6

7. Explain :—

(a) Natality and Mortality. 4

(b) Desert Ecosystem. 4

(c) Single channel energy flow model 4

OR

(d) Food web 4

(e) Xerosere 4

(f) Pond ecosystem. 4