AT–381

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) The net gain of ATP molecules in glycolysis are _____ during aerobic respiration. ½

(ii) _____ plant hormones promote cell division. ½

(iii) Non-living components of ecosystem are called as _____. ½

(iv) The percentage of Nitrogen in atmosphere is _____. ½

(B) Choose correct alternative (MCQ) :

(v) Phototrophic movement in plants is induced by _____ stimulus. ½

(a) Touch (b) Light

(c) Gravity (d) Water

(vi) The final product of glycolysis is _____. ½

(a) Pyruvic acid (b) Oxalic acid

(c) Fumaric acid (d) Malic acid

(vii) The plants which grow in dry habitats or in xeric conditions are _____. ½

(a) Hydrophytes (b) Xerophytes

(c) Halophytes (d) Mesophytes

(viii) _____ is biotic factor. ½

(a) Water (b) Temperature

(c) Plants (d) Light

(C) Answer in one sentence each :

(ix) Define Ascent of Sap. 1

(x) What is Guttation ? 1

(xi) What is mortality ? 1

(xii) Name any two plant hormones. 1

2. Explain the following :

(a) Osmosis 4

(b) Carrier concept 4

(c) Starch-Sugar hypothesis. 4

OR

(d) Plasmolysis 4

(e) Guttation 4

(f) Root Pressure Theory. 4

3. Describe in detail Calvin Cycle. 12

OR

Explain :

(g) Glycolysis. 6

(h) Respiratory Quotient. 6

4. Describe :

(i) Sources of Nitrogen to the plant 4

(j) Growth curve 4

(k) Cytokinin. 4

OR

(l) Symbiotic Nitrogen fixation 4

(m) Physiological roles of auxin (any two) 4

(n) Senescence. -

5. Explain :

(o) Salinity stress 4

(p) Vernalization 4

(q) Seismonastic movement. 4

OR

(r) Phototrophic movement 4

(s) Water stress 4

(t) Role of phytochrome. 4

6. Explain :

(u) Process of soil formation 6

(v) Morphological and Anatomical adatations of hydrophytes. 6

OR

(w) Role of water as climatic factor 6

(x) Structure of atmosphere. 6

7. Explain :

(y) Natality and Mortality 4

(z) Food chain 4

(a) Pond ecosystem. 4

OR

(b) Frequency 4

(c) Hydrosere 4

(d) Desert Ecosystem. 4

www.sgbauonline.com