AS–1455

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 term ecosystem was coined by _____ in 1935. ½

(ii) The common pathway of both aerobic and anaerobic respiration is _____. ½

(iii) The induction of flowering in plants by cold temperature treatment is called as _____. ½

(iv) CO_2 acceptor in Calvin Cycle is _____. ½

(B) Choose correct alternatives (MCQ) :

(v) Enzyme required for the formation of ATP is _____.

(a) Hexokinase (b) ATP Synthetase

(c) Dehydrogenase (d) Carboxylase ½

(vi) _____ hormone is responsible for fruit ripening.

(a) Cytokinin (b) Ethylene

(c) Auxin (d) Abscisic acid ½

(vii) _____ is edaphic ecological factor.

(a) Soil (b) Light

(c) Temperature (d) Water ½

(viii) Phototropic movement in plants is induced by _____ stimulus.

(a) Touch (b) Light

(c) Water (d) Gravity ½

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

(ix) Theory of Water Translocation proposed by Dixon and Jolly known as ? 1

(x) What is Respiratory Quotient ? 1

(xi) Name any one synthetic auxins. 1

(xii) Define the term succession. 1

2. Explain the following :

(a) Carrier concept. 4

(b) Root Pressure theory. 4

(c) Osmosis. 4

OR

(d) Guttation. 4

(e) Importance of water to plant life. 4

(f) Starch sugar hypothesis. 4

3. Describe in detail the Kreb's Cycle. 12

OR

(g) Non cyclic photophosphorylation. 6

(h) C_4 Pathway. 6

4. Explain the following :

(i) Symbiotic Nitrogen Fixation. 4

(j) Phases of growth. 4

(k) Physiological role of Auxin. 4

OR

(l) Senescence. 4

(m) Sources of nitrogen to the plants. 4

(n) Growth curve. 4

5. Explain the following :

(o) Long day plants. 4

(p) Seismonastic movements. 4

(q) Vernalization. 4

OR

(r) Salinity stress. 4

(s) Geotropic movements. 4

(t) Role of phytochrome. 4

6. Describe morphological and anatomical adaptions of xerophytes. 12

OR

(u) Process of soil formation. 6

(v) Atmosphere and its composition. 6

7. Explain the following :

(a) Single channel energy flow model. 4

(b) Hydrosere. 4

(c) Frequency. 4

OR

(p) Natality. 4

(q) Food chain. 4

(r) Pond ecosystem. 4