

AP-495

B.Sc. Part—III (Semester—V) Examination

5S : 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 Nos. 2 to 7 carry equal marks.

(4) Draw well labelled diagrams wherever necessary.

1. (A) Fill in the blanks :

(i) Movement of molecules from region of higher concentration to lower concentration is called as ———. $\frac{1}{2}$

(ii) Fruit ripening hormone is ———. $\frac{1}{2}$

(iii) *Casurina* and *Nerium* shows ——— ecological adaptations. $\frac{1}{2}$

(iv) The tropic movements occur in response to light stimulus is known as ——— movements. $\frac{1}{2}$

(B) Choose correct alternative (MCQ) :

(v) The end product of glycolysis is :

- (a) Ethanol
- (b) Malic acid
- (c) Pyruvic acid
- (d) Citric acid.

$\frac{1}{2}$

(vi) The symbiotic nitrogen fixation is found in family :

- (a) Asteraceae
- (b) Leguminosae
- (c) Rutaceae
- (d) Malvaceae.

$\frac{1}{2}$

(vii) The Hormone regulating Vernalization is :

- (a) Gibberellin
- (b) Ethylene
- (c) Florigen
- (d) Vernalin.

$\frac{1}{2}$

(viii) Swelling of dry seeds in water is :

- (a) Absorption

7. Explain :

- | | |
|----------------------------|---|
| (s) Population density | 4 |
| (t) Xerosere | 4 |
| (u) Food web | 4 |
| OR | |
| (v) Natality and Mortality | 4 |
| (w) Desert ecosystem | 4 |
| (x) Hydrosere. | 4 |

(b) Diffusion

(c) Imbibition

(d) Plasmolysis.

$\frac{1}{2}$

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

(ix) What is anaerobic respiration ?

1

(x) Define photoperiodism.

1

(xi) What is population ecology ?

1

(xii) Define senescence.

1

2. Explain :

(a) Plasmolysis

4

(b) Starch-Sugar hypothesis

4

(c) Ion-Exchange Theory.

4

OR

(d) Root pressure theory

4

(e) Stomatal movements

4

(f) Active absorption of water.

4

3. Describe in detail Glycolysis in respiration.

12

OR

Illustrate photophosphorylation in photosynthesis.

12

4. Explain :

- | | |
|--------------------------------------|---|
| (g) Symbiotic nitrogen fixation | 4 |
| (h) Physiological role of cytokinins | 4 |
| (i) Auxins and their roles | 4 |

OR

- | | |
|-----------------------------|---|
| (j) Growth curve | 4 |
| (k) Sources of nitrogen | 4 |
| (l) Role of Absciscic acid. | 4 |

5. Discuss :

- | | |
|---------------------|---|
| (m) Short day plant | 4 |
| (n) Vernalization | 4 |
| (o) Water stress. | 4 |

OR

- | | |
|---------------------------|---|
| (p) Seismonastic movement | 4 |
| (q) Phytochrome | 4 |
| (r) Long day plant | 4 |

6. Explain morphological and anatomical adaptations in xerophytic plants. 12

OR

Describe process of soil formation with special reference to soil profile. 12