

[This question paper contains 4 printed pages.]

4647

Your Roll No.

B.Sc. Prog./II

AS

**BIO-202 – BIOLOGY OF PLANTS : FORM,
STRUCTURE AND FUNCTION**

(Admissions of 2008 and onwards)

Time : 3 hours

Maximum Marks : 75

*(Write your Roll No. on the top immediately
on receipt of this question paper.)*

Attempt any five questions.

Parts of a question should be answered together.

All questions carry equal marks.

1. (a) Write short notes on **any three** of the following :

(i) Law of Priority in ICBN, regarding Homonym
and Synonym

(ii) Quantum yield of Hill's Reaction

(iii) Evolutionary trends amongst plants

(iv) Artificial System of classification

(v) Biological Species Concept (3×3=9)

(b) Without drawing the molecular structures of intermediates, make a flow-sequence diagram of the Glycolysis of respiration, citing only the names of intermediates, enzymes involved, and the sites of dehydrogenation and phosphorylation. (6)

P.T.O.

2. (a) Differentiate between **any three** of the following pairs of contrasting terms :
- (i) Convergent versus divergent evolutions
 - (ii) Holotype versus Syntype
 - (iii) Symbiotic versus non-symbiotic nitrogen-fixation, citing suitable examples
 - (iv) Gram +ve versus Gram -ve bacteria
 - (v) Exarch versus endarch types of primary xylem (3×3=9)
- (b) Give an account of Cohesion-tension theory of the ascent of sap.

OR

Explain briefly the phenomenon of Green Revolution in India. (6)

3. Attempt **any three** of the following :
- (i) Give a brief account of the Alternation of Generation in *Funaria*.
 - (ii) Describe the Proton-transport theory explaining stomatal movement.
 - (iii) Elucidate the significance of heterospory in the evolution of seed habit.
 - (iv) Explain the formation of carposporophyte.

(v) Give account of uredospore and its role in secondary infection of wheat-crop. ($3 \times 5 = 15$)

4. (a) Without drawing the molecular structures, make a flow-sequence illustration of Kreb's cycle, citing the names of intermediates, enzymes involved, sites of dehydrogenation and the step associated with substrate-level phosphorylation. (10)

(b) Explain as to why transpiration is considered necessary evil. (5)

OR

Write an account of the economic importance of bryophytes.

5. Suitably describe **any three** of the following :

(i) Major steps in the processing of latex to produce rubber

(ii) Crassulacean Acid Metabolism

(iii) Pentose phosphate pathway of respiration

(iv) Economic importance of gymnosperms

(v) Bentham and Hooker's system of classification
($3 \times 5 = 15$)

6. Give brief accounts of **any five** of the following :

(i) Dolipore

- (ii) Rhizophore
- (iii) Phytochrome
- (iv) Apospory, with suitable examples
- (v) Physiological dryness of the soil
- (vi) *Cinchona*
- (vii) Vernalization
- (viii) Criteria for essentiality of an inorganic element in plant nutrition
- (ix) Dwarf shoot of *Pinus* (5×3=15)

7. Draw well-labelled outline diagrams of **any three** of the following :

- (i) T.s. monocot root, with a part magnified to show details
- (ii) L.s. *Pinus* megasporophyll, passing through ovule and just before fertilization
- (iii) Electron micrograph of a typical bacterial cell
- (iv) T.s. coralloid root
- (v) V.s. basidiocarp of *Agaricus*, with a part of a gill magnified separately to show basidial hymenium (3×5=15)