

M.Sc. 3rd Semester Examination, 2014

BOTANY

PAPER—BOT-301

Full Marks : 40

Time : 2 hours

The figures in the right-hand margin indicate marks

Candidates are required to give their answers in their own words as far as practicable

Illustrate the answers wherever necessary

UNIT – I

[Marks : 20]

Answer Q. Nos. 1 & 2 and any one from the rest

1. Answer any five questions : 1 × 5

(i) Define Gibbs free energy.

(ii) Name two synthetic auxins.

(Turn Over)

(2)

- (iii) What is quantum requirement ?
- (iv) Name two inhibitors of nitrogenase.
- (v) How does Pr differ from Pfr ?
- (vi) Name a photosynthetic inhibitor.
- (vii) Write the empirical formula of chlorophyll-a.
- (viii) Write the full form of TIBA.

2. Write short notes on any *two* of the following :

- (i) Non symbiotic nitrogen fixation ; $2\frac{1}{2} \times 2$
- (ii) Physiological effect of cytokinin ;
- (iii) Regeneration of RuBP in photosynthesis ;
and
- (iv) Primary and secondary seed dormancy.

3. (a) Discuss the mechanism of cyclic and non-cyclic electron transport and photophosphorylation.

(3)

- (b) Why C_4 plants are considered more efficient in fixing CO_2 than C_3 plants ?
Explain. 7 + 3
4. (a) Briefly describe the mechanism of N_2 -fixation in symbiotic bacteria.
- (b) Write explanatory note on practical applications of auxin. 6 + 4

UNIT – II

[Marks : 20]

Answer Q. No. 5 & 6 and any one from the rest

5. Answer any *five* of the following : 1 × 5
- (i) Name two essential amino acids.
- (ii) What are the two components of starch ?
- (iii) What are isozymes ?
- (iv) What is amphoteric compound ?
- (v) Write the full form of TLC.

(vi) State the basic principle of gel electrophoresis.

(vii) What is glycosidic linkage ?

(viii) Expand the abbreviations – PUFA and MUFA.

6. Write short notes on any *two* of the following :

(i) Saponification number ; $2\frac{1}{2} \times 2$

(ii) Structural classes of proteins ;

(iii) Koshland's induced fit theory ; and

(iv) Chromatography.

7. (a) Differentiate between saturated and unsaturated fatty acids.

(b) Describe the β -oxidation pathway of fatty acids.

(c) Name two essential fatty acids. $2 + 7 + 1$

(5)

8. (a) Give a brief account of the structure of carbohydrates found as stored food in plants.
- (b) Schematically represent how the peptide bond is formed.
- (c) Write a short note on feedback inhibition.

4 + 3 + 3