

2017

M.Sc.

3rd Semester Examination

BOTANY

PAPER—BOT-302

Full Marks : 40

Time : 2 Hours

The figures in the margin indicate full marks.

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

Illustrate the answers wherever necessary.

Answer All questions.

Unit—I

(Plant Physiology)

[Marks : 20]

1. Answer any *four* questions of the following : 4×1

(a) What is glyoxylate cycle ?

(b) What is stratification ?

(Turn Over)

- (c) Name the precursor substance for biosynthesis of GA and ethylene.
- (d) What does it mean by quantum requirement ?
- (e) Why ATP is considered as energy currency in living system ?
- (f) What are ephemeral plants ?
- (g) Name two germination inhibitors.

2. Answer any *two* of the following :

2×3

- (a) Role of phytochrome in flowering induction.
- (b) Dual role of RUBISCO.
- (c) Acid growth hypothesis of auxin action.

3. Answer any *one* of the following :

- (a) (i) Briefly describe the CO₂ concentrating mechanism in C₄ plants. Why C₄ plants are considered more efficient than C₃ plants in fixing CO₂. (4+2)
- (ii) Schematically represent the compartmentalised reactions of photorespiration. 4
- (b) (i) Distinguish between indole and non-indole auxino.

- (ii) Briefly describe the metabolic changes during seed germination.
- (iii) Mention the role of GA in seed germination.

2+5+3

Unit—II*(Biochemistry)*

[Marks : 20]

4. Answer any *four* questions of the following : 4×1
- (a) Why an amino acid functions as 'Zwitter' ion ?
 - (b) Distinguish between fat and oil.
 - (c) What is the function of leghaemoglobin ?
 - (d) What is allosteric inhibition ?
 - (e) Mention the empirical formulae of carotene and xanthophylls.
 - (f) What is Gibb's free energy ?
 - (g) What do you mean by polyunsaturated fatty acid ?
5. Answer any *two* of the following : 2×3
- (a) Acidic and basic amino acids

- (b) Ramchandran Plot
- (c) Chemical composition of stored polysaccharides in plants.

6. Answer any *one* from the following :

- (a) (i) Briefly describe *inf* gene and Nod factor.
 - (ii) Write a short note on the process of modulation in leguminous plants.
 - (iii) Distinguish between primary and secondary plant metabolites. Give examples. 4+3+3
- (b) (i) Describe the primary and higher order structures of protein.
 - (ii) Derive Michaelis-Menten equation for a reaction when there is excess of substrate and enzyme concentration is held constant. 6+4
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