

Sl. No.

7491

D-VSF-L-OB

BOTANY

Paper II

Time Allowed : Three Hours

Maximum Marks : 200

INSTRUCTIONS

*Candidates should attempt questions 1 and 5 which are compulsory, and any **THREE** of the remaining questions, selecting at least **ONE** question from each Section.*

All questions carry equal marks.

Marks allotted to parts of a question are indicated against each.

*Answers must be written in **ENGLISH** only.*

Suitable diagrams may be drawn, wherever required.

(Contd.)

Section 'A'

1. Write short notes on any *four* of the following in not more than 150 words each : 10×4=40
 - (a) CDK and progression of M-phase
 - (b) Translocation heterozygotes
 - (c) Evidence for bidirectional replication of DNA
 - (d) Golden rice
 - (e) Pearson's correlation coefficient

2. (a) Describe the chemical organization of biomembranes. Discuss the functions of their constituents. 20
(b) Discuss the role of autopolyploidy in evolution and crop improvement. 20

3. (a) Describe the chromosomal basis of sex determination in different organisms. 20
(b) Discuss the changes the newly synthesized RNA undergoes before translation in eukaryotes. 20

4. (a) What are the advantages of micropropagation over the conventional methods of clonal propagation of plants ? 20
(b) What is cytoplasmic male sterility ? Discuss its importance in the improvement of crops. 20

Section 'B'

5. Write short notes on any *four* of the following in not more than 150 words each : $10 \times 4 = 40$

- (a) Stomatal movement
- (b) Photosystem II
- (c) Secondary metabolites
- (d) Role of ABA in seed maturation
- (e) Renewable resources of energy

6. (a) Illustrate the biochemical steps in the process of nitrogen fixation. Mention at least two special structures associated with nitrogen fixation in different organisms. 20

(b) Describe the metabolic details of CO_2 fixation in CAM plants. 20

7. (a) Discuss the chemiosmotic theory of ATP synthesis. Mention the net gain of ATP molecules from the breakdown of one glucose molecule. 20

(b) Describe the role of growth regulators in parthenocarpy. 20

8. (a) Describe the biotic and abiotic components of a biome. 20
- (b) Discuss the national and international efforts towards protection and preservation of biodiversity. 20
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