

Roll No. :

Total No. of Questions : 11]

[Total No. of Printed Pages : 3

BPG-1084

M.Sc. (Previous) Examination, 2021

BOTANY

Paper - IV

(Biochemistry and Plant Physiology)

Time : 1½ Hours]

[Maximum Marks : 75

Section-A

(Marks : 2 × 10 = 20)

Note :- Answer all *ten* questions (Answer limit **50** words). Each question carries **2** marks.

Section-B

(Marks : 5 × 5 = 25)

Note :- Answer all *five* questions. Each question has internal choice (Answer limit **200** words). Each question carries **5** marks.

Section-C

(Marks : 10 × 3 = 30)

Note :- Answer any *three* questions out of five (Answer limit **500** words). Each question carries **10** marks.

Section-A

2 each

1. Attempt the following questions :

- (i) Name Glucogenic Amino Acids.
- (ii) What are Zymogen ?

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- (iii) Define Antitranspirants. Give *two* examples.
- (iv) What is Caffeine ?
- (v) Define Calmodulin.
- (vi) What is Pseudocyclic Photophosphorylation ?
- (vii) Importance of Glyoxalate cycle.
- (viii) Role of nitrogenase enzyme in nitrogen fixation.
- (ix) Explain chemical nature of cytokinin.
- (x) Write the importance of vernalization.

Section–B

5 each

2. Describe the structure and biological significance of cellulose.

Or

Describe the effects of pH and temperature on enzyme activity.

3. Write short notes on the following :

- (i) Biological significance of secondary metabolites
- (ii) Distribution of Alkaloids in Plants

Or

Explain the transport mechanism involved in movement of water in soil-plant-atmosphere continuum and their driving forces.

4. Describe the active and passive uptake of minerals in plants.

Or

Describe Crassulacean Acid Metabolism (CAM) pathway and its significance.

5. Explain the synthesis of ATP through oxidative electron transfer chain.

Or

What is GS-GOGAT Pathway ? Name the enzymes involved in it.

6. Describe the structure and physiological effects of Gibberellins.

Or

What is Photoperiodic Induction ? Name the hormone produced due to it and also explain its significance.

Section-C

10 each

7. Explain the structure of fatty acid synthetase complex and its role in fatty acid synthesis.
8. Explain the different theories of stomatal regulation of Transpiration.
9. What is Photorespiration ? Explain the mechanism and its significance.
10. What is Biological Nitrogen Fixation ? Describe the mechanisms and its significance.
11. Describe the chemical nature, Bioassay, Physiological effects and mode of action of Auxin.