

PG (CBCS)
M.Sc. Semester-III Examination, 2022
BOTANY
PAPER: BOT 302
(PLANT PHYSIOLOGY & BIOCHEMISTRY)



Full Marks: 40

Time: 2 Hours

Write the answer for each unit in separate sheet

The figures in the right-hand margin indicate full marks.

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

UNIT 302.1: PLANT PHYSIOLOGY

Marks: 20

GROUP-A

1. Answer any TWO questions of the following: 2×2=4

- a) Define stress alleviatory protein with an example.
- b) What are SAGs and SDGs in respect of senescence?
- c) Define oxygenic and anoxygenic photosynthesis.
- d) What is meant by T_{50} of seed germination?

GROUP-B

2. Answer any TWO questions of the following: 4×2=8

- a) Write synergistic and antagonistic actions of phytohormones? Name specific phytohormones associated with bolting, fruit ripening, abscission and cell division. 2+2
- b) How does senescence differ from abscission? Enumerate the major physiobiochemical changes noted during leaf senescence. 2+2
- c) Write down in brief the mechanism of phloem loading and unloading encountered in higher plants. 4
- d) Write brief about pentose phosphate pathway found in plant. 4

GROUP-C

3. Answer any ONE question of the following: 8×1=8

- a) Enumerate the characteristics of C_4 plants mentioning their unique carbon fixation process. 3+5

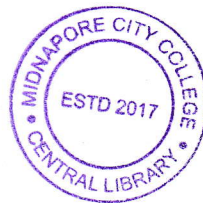
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- c) Name the biosynthetic precursors of IAA and ethylene. Write down with a flow chart the biosynthesis of ethylene. What is Yang cycle? 2+5+1

UNIT II: 302.2: BIOCHEMISTRY

Marks: 20

GROUP-A**1. Answer any TWO questions of the following:**

2×2=4

- Define Michaelis-Menten equation.
- What is activation energy?
- Write down the function of leg hemoglobin.
- What are glycoside bonds?

GROUP-B**2. Answer any TWO questions of the following:**

4×2=8

- Write a short note on the process of nodulation in leguminous plants
- What are the differences between α oxidation and β oxidation of fatty acids?
- Write short note on Ramachandran plot.
- What are the differences α helix and β plated sheet?

GROUP-C**3. Answer any ONE question of the following:**

8×1=8

- Write down the factors that affect enzyme action. Describe competitive and non-competitive inhibition of enzyme action. 4+4
- What is redox potential? Briefly describe the principles of thermodynamics. What is Gibbs free energy and mention its significance. 2+3+ (1+2)
