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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

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**

a) Define Michaelis-Memten equation.

b) What is activation energy?

c) Write down the function of leg hemoglobin.

d) What are glycoside bonds?

GROUP-B

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

a) Write a short note on the process of nodulation in leguminous plants

b) What are the differences between α oxidation and β oxidation of fatty acids?

c) Write short note on Ramachandran plot.

d) What are the differences α helix and β plated sheet?

GROUP-C

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

a) Write down the factors that affect enzyme action. Describe competitive and non-competitive inhibition of enzyme action. 4+4

b) What is redox potential? Briefly describe the principles of thermodynamics. What is Gibbs free energy and mention its significance. 2+3+ (1+2)

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