

Total page: 1

PG CBCS
M.Sc. Semester-III Examination, 2020
BOTANY
PAPER: BOT 302

PLANT PHYSIOLOGY, BIOCHEMISTRY & MOLECULAR BIOLOGY

Full Marks: 40

Time: 2 Hours

Write the answer for each unit in separate sheet

BOT 302.1

PLANT PHYSIOLOGY

1. Answer any two questions from the following: **10 x 2 = 20**

- I. Define HSPs. Write their role on stress alleviation in plants. Give an account of the physiological and molecular responses in plants against heat stress. 2+4+4
- II. Define sink and source. Write down in brief the mechanism of phloem loading and unloading encountered in higher plants. 3+7
- III. Briefly describe the CO₂ assimilation mechanism in C₄ plants. Why C₄ plants are considered more efficient than C₃ plants in CO₂ fixation? 6+4
- IV. What is phytochrome? How does phytochrome mediate the photomorphogenetic response? 4+6
- V. Briefly describe the Z- scheme in plants. Write short note on mitochondrial electron transport chain. 4+6

BOT 302.2

BIOCEMISTRY

2. Answer any two questions from the following: **10 x 2 = 20**

- I. What is peptide bond? Name the major chemical bonds involved in constituting protein structure. Describe β -pleated sheet structure of a protein. 2+3+5
- II. Describe in detail the biosynthesis of starch in plants. 10
- III. Define saturated and unsaturated fatty acids citing one example of each. Write the full form of PUFA and MUFA. What are the differences between α -oxidation and β -oxidation of fatty acids? 4+2+4
- IV. What is activation energy? What is redox potential? Briefly describe the principles of thermodynamics. What is Gibbs free energy and mention its significance. 2+2+3+3
- V. Define Michaelis-Menten equation. Write down the factors that affecting enzyme activity. Graphically represent the competitive and non-competitive inhibition of enzymes. 2+4+4