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PG CBCS
M.SC. Semester-III Examination, 2021
BOTANY
 PAPER: BOT 302
 (PLANT PHYSIOLOGY & BIOCHEMISTRY)

Full Marks: 40

Time: 2 Hours

Write the answer for each unit in separate sheet

BOT 301.1

PLANT PHYSIOLOGY

Answer any **TWO** questions from the following:

2X10 = 20

1. What is NPQ? Distinguish between the structure of PS-I and PS-II at the molecular level. Note down the role of D₁ and D₂ protein which are found in the PS-II. 2+6+2
2. Define photorespiration mentioning a potent photorespiring plant. Name the organelles where photorespiratory reactions are operated. Write down the compartmentalized reaction steps of the process. 1.5+1.5+7
3. Distinguish between senescence and abscission. Describe the molecular signaling system of abscission in plants. 4+6
4. What is unidirectionality in auxin transport? Name the two carriers of auxin transport? What is ubiquitin 26s proteolysis system? Describe the auxin signaling pathway. 2+2+2+4
5. Classify higher plants on the basis of their photoperiodic responses with an example from each class. Write your concept on critical day length with respect to flowering. What is meant by floral stimulus? 6+2+2

BOT 301.2

BIOCHEMISTRY

Answer any **TWO** questions from the following:

2X10 = 20

1. Define micelles, mixed micelles, liposome and lipid bilayer. Write the importance of each one. What are the differences between α oxidation and β oxidation of fatty acids?

4+2+4

(P.T.O.)

(2)

2. 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
3. Define Michaelis-Menten equation. Write down the factors that affects enzyme action. Describe competitive and non-competitive enzyme inhibition. 2+3+5
4. Distinguish between homopolysaccharides and heteropolysaccharides. Give an outline classification of carbohydrates. Name the monosaccharides obtained after breakdown of sucrose and maltose. 2+6+2
5. Name the different structural levels of proteins. Describe in brief and diagrammatically represent the α -helix structure of protein molecules. Define acidic and basic amino acids with an example of each. 2+5+3
