

PG (NEW) CBCS
M.Sc. Semester-III Examination, 2019
BOTANY
PAPER: BOT-302
(PLANT PHYSIOLOGY & BIOCHEMISTRY)

Full Marks: 40

Time: 2 Hours



Write the answer for each unit in separate sheet

UNIT I:

PLANT PHYSIOLOGY

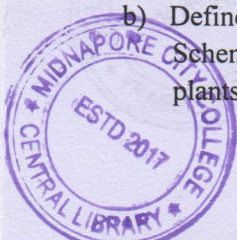
1. Answer any two questions of the following: 2×2=4
 - a) Define oxygenic and anoxygenic photosynthesis.
 - b) What are monocarpic and polycarpic senescence?
 - c) Define stress alleviatory proteins with an example.
 - d) Name one diterpenoid and sesquiterpenoid phytohormone.

2. Answer any two questions of the following: 4×2=8
 - a) Define climacteric and nonclimacteric fruits citing one example of each.
Mention two major biochemical changes occurring during fruit ripening.
3+1
 - b) How does senescence differ from abscission? What are SAGs and SDGs?
2+2
 - c) What is meant by T_{50} value of seed germination? Briefly write the important metabolic changes associated with germination of starchy seeds?
1+3
 - d) Write down in brief the mechanism of phloem loading and unloading encountered in higher plants.

3. Answer any one question of the following: 8×1=8
 - a) i) Name the specific alcoholic tail found in green plant chlorophylls and bacterio chlorophylls. Give an outline of the diversity of photosynthetic pigment.
(1+3)+4
 - ii) Enumerate the characteristics of CAM plants mentioning their unique features.

(P.T.O)

(2)



- b) Define indole and nonindole auxins with an example of each. Schematically represent different modes of IAA biosynthesis found in plants. 3+5

UNIT II:
BIOCHEMISTRY

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

- Define competitive and non-competitive inhibition of enzymes.
- Distinguish between homopolysaccharides and heteropolysaccharides.
- What are nod and nif genes?
- Why is ATP considered as energy currency in living system?

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

- Write down the principles of thermodynamics. What is your concept on redox potential? 3+1
- Define acidic and basic amino acids with an example of each. Structurally represent how amino acids are united to form a polypeptide chain. 2+2
- What is symbiotic and nonsymbiotic nitrogen fixation? Explain why effective nodules are pink coloured but ineffective ones are colourless. 2+2
- Write a short note on different structural levels of proteins.

6. Answer any one question of the following: 8×1=8

- Distinguish between α and β oxidation of fatty acids. Briefly write and show with a flowchart the sequential steps of β -oxidation process. 2+6
- How do primary metabolites differ from secondary metabolites? Give an outline classification of secondary metabolites encountered in plant system. 2+6
