

U.G. 5th Semester Examination - 2024**BOTANY****[HONOURS]****Course Code : BOTH-CC-T-12****(Plant Metabolism)****Full Marks : 40****Time : 2½ Hours***The figures in the right-hand margin indicate marks.**Candidates are required to give their answers in their own words as far as practicable.*

1. Answer any five of the following questions: $2 \times 5 = 10$
 - a) Name one nodule forming and non-nodule forming symbiotic nitrogen fixing bacterium.
 - b) What do you mean by allosteric enzyme?
 - c) What do you mean by reparatory substrate?
 - d) Name one SDP, LDP and Day neutral plants.
 - e) How nitrate is assimilated in plants?
 - f) Differentiate the chemical structure of Chl a and Chl b.
 - g) Define Kranz anatomy.
 - h) What are Obligate anaerobes, Facultative aerobes and Aero-tolerant anaerobes?

[Turn over]

2. Answer any two of the following questions: $5 \times 2 = 10$
- a) Illustrate the nodulation process in nitrifying bacteria with suitable diagram.
 - b) Give a schematic diagram of glyoxylate cycle. What is the significance of glyoxylate cycle?
3+2
 - c) Describe the synthesis of sucrose. What is Glycolysis?
3+2
 - d) Explain the flow of electron during light reaction of photosynthesis, with the help of flowchart.
3. Answer any two of the following questions: $10 \times 2 = 20$
- a) Explain the carbon fixation process in CAM plants. How is it different from C4 cycle? 7+3
 - b) Give a detailed outline of the Krebs cycle, showing the substrates, product and enzymes for each of the important steps. Write down its biological significance.
7+3
 - c) Describe the process of mitochondrial electron transport chain. What is cyanide resistant respiration?
7+3
 - d) What is leghaemoglobin? Explain the process of biological nitrogen fixation in legumes. 2+8