B. Sc. (Hons.) Botany / Semester : VI

Title of paper: Plant Metabolism (Core)

Unique Code : 32161601

Duration : 3 Hours + 1 hour **Maximum Marks : 75**

(Write your University Roll Number, and Paper Title and Code on top of the Answer Sheet)

Attempt *any four* questions in all. All questions carry equal marks (i.e. 18.75).

1. Compare the photosynthetic electron transport chain with plant respiratory electro transport chain and discuss the mechanism of ATP synthesis. Write an explanatory note on the experiment that established the presence of two photosystems in light reaction.

2. The process of synthesis of glucose from atmospheric carbon dioxide is different in C3, C4 and CAM plants. Comment. Write a note on photorespiration.

3. Describe in detail the two pathways which operate in plant cells to oxidize glucose 6-phosphate. Discuss their significance and regulation.

4. Discuss the characteristic features of membrane receptors. Elaborate on the signaling mechanism of G-protein coupled receptors (GPCRs) and Ion-channel linked receptors.

5. Enumerate the steps in fixation of molecular nitrogen. Briefly explain the biochemistry of nitrogen fixation with special reference to characteristics of nitrogenase enzyme.

6. Give a detailed account of the biosynthesis of triglycerides in plants.