

U.G. 6th Semester Examination - 2022**BOTANY****[HONOURS]****Course Code : BBOTCCHC601****Course Title : Plant Metabolism**

Full Marks : 30

Time : 2 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 **ten** questions: $1 \times 10 = 10$
- Explain the effect of O_2 and CO_2 on photosynthesis.
 - What is heterotropic allosteric enzyme inhibition?
 - What is the role of "chlorophyll b"?
 - What is stroma lamellae?
 - Write down the name of ultimate electron acceptor of "Z scheme" of photosynthesis.
 - Write down the name of cell organelles involved in photorespiration.

- Mention the regulatory enzymes in glycolytic pathway.
 - What are the different types of C_4 variants?
 - Why CAM plants close their stomata during day time?
 - What are the properties of isoenzymes?
 - What separation technique is used for separation of photosynthetic pigments?
 - What is Haber-Bosch process of nitrogen fixation?
 - What are the differences between alpha oxidation and beta oxidation of fatty acid?
 - Give an example of chemical uncoupler of mitochondrial respiratory chain.
 - What is deamination process?
2. Answer any **five** questions: $2 \times 5 = 10$
- How synthesis of sucrose and starch does take place in plant cell?
 - What is 'Pasteur effect' in glucose metabolism?
 - What are the components of electron transport chain?

[Turn over]

- d) What is alternative oxidase (AOX)? Mention its role.
- e) Where is citric acid cycle regulated?
- f) What is signal transduction? Mention its basic components.
- g) Difference between substrate level phosphorylation and oxidative phosphorylation.
- h) What is photolysis of water? How it helps in photosynthetic electron transport chain?

3. Answer any **two** questions: $5 \times 2 = 10$

- a) Mention the steps of gluconeogenesis and its role in mobilization of lipids during seed germination.
- b) Describe the different steps of nitrate to ammonia formation in nitrogen metabolism. What is GS-GOGAT pathway of ammonia assimilation? $3 + 2 = 5$
- c) Write down the chemiosmotic mechanism of ATP synthesis.
