U.G. 5th Semester Examination - 2021

BOTANY

[HONOURS]

Course Code : BOT-H-CC-T-12

(Plant Metabolism)

Full Marks : 40 Time : $2\frac{1}{2}$ 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 **five** of the following questions: 2×5=10
   a) Mention the functions of the light-harvesting complex.
   b) Name two inhibitors of the electron transport chain in mitochondria.
   c) What are isozymes? Cite one example.
   d) State the function of sucrose synthase.
   e) Write down an irreversible reaction of glycolysis.
   f) State the significance of the glyoxylate cycle.
   g) What are second messengers? Give one example.
   h) State the role of nitrate reductase in nitrogen metabolism.

2. Answer any **two** of the following: 5×2=10
   a) What is cyanide-resistant respiration? State its significance. What are uncouplers? 2+2+1=5
   b) Discuss the role of nitrogenase in symbiotic nitrogen fixation. 5
   c) Define cyclic and non-cyclic photophosphorylation. Mention the role of PSII during photophosphorylation. 2+3=5
   d) Write down the first committed step in fatty acid biosynthesis. State the role of ACP in fatty acid biosynthesis. 2+3=5
3. Answer any **two** of the following: 10×2=20
   a) Write down in detail the reactions of the Pentose phosphate pathway mentioning the enzymes involved in each step. State the significance of the pathway. 8+2=10
   b) How does pyruvic acid oxidize in mitochondria by the citric acid cycle? What are anaplerotic reactions? 8+2=10
   c) What is chemiosmotic mechanism? Discuss the mechanism of ATP synthesis. 3+7=10
   d) Write down the mechanisms of Crassulacean acid metabolism. State the significance of the process. 8+2=10

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