GALGOTIAS UNIVERSITY

| ADMISSION NUMBER |
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# School of Biological and Life sciences

**Master of Science in Biochemistry**
**Semester End Examination - Jun 2024**

**Duration : 180 Minutes**
**Max Marks : 100**

## Sem II - P1PP202T - Bioenergetics and Intermediary Metabolism

*General Instructions*
*Answer to the specific question asked*
*Draw neat, labelled diagrams wherever necessary*
*Approved data hand books are allowed subject to verification by the Invigilator*

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| 1) | List down the name of reaction center in Photosystem I and Photosystem 2. | K1(2) |
| 2) | Define metabolism of cell. Explain difference between catabolism and anabolism | K2(4) |
| 3) | Describe the metabolic fate of fructose in the human body. | K2(6) |
| 4) | How does Malate-Aspartate shuttle facilitate the movement of reducing equivalents between the cytoplasm and mitochondria? | K3(9) |
| 5) | Explain the chemiosmotic theory of ATP synthesis. How does the movement of protons across a membrane contribute to the generation of ATP? | K3(9) |
| 6) | Explain the key enzymatic reactions in the glyoxylate cycle and how they facilitate the conversion of acetyl-CoA to glucose in plants and bacteria. | K5(10) |
| 7) | Explain the process of Carbondioxide assimilation in photosynthesis. How do plants capture and convert atmospheric carbon dioxide into organic molecules, and what is the significance of this process in carbon cycling? | K4(12) |
| 8) | How is glycogen synthesized and broken down in response to cellular energy needs, and what are the key enzymes involved in these processes?" | K5(15) |
| 9) | Compare and contrast cyclic and non-cyclic photophosphorylation. How do these two mechanisms differ in terms of electron flow and ATP production in photosynthetic organisms | K5(15) |
| 10) | Illustrate different steps of the TCA cycle. Why TCA cycle is considered Amphibolic in nature? | K6(18) |