INTERNATIONAL CENTRE FOR APPLIED SCIENCES
MAHE, MANIPAL

B.Sc. (Applied Sciences) in Engg.

End – Semester Theory Examinations – Nov./ Dec. 2020

IV SEMESTER – BIO-CHEMISTRY (IBT 231)

(Branch: Chemical)

Time: 3 Hours **Date: 8 December 2020** **Max. Marks: 100**

- ✓ **Answer any FIVE full questions.**
- ✓ **Missing data, if any, may be suitably assumed**

1A	Explain the role of aspartate and acetyl CoA as a metabolic intermediate in different pathways.	**8**
1B	What is dihedral angle? Describe the significance and applications.	**8**
1C	Explain mutarotation with example.	**4**
2A	Explain the functions of carbohydrates with examples	**8**
2B	Describe the regulation of glycolysis and gluconeogenesis.	**8**
2C	Explain the synthesis of purines.	**4**
3A	Explain the reactions of TCA bicycle with energetics	**8**
3B	Describe the structure of DNA and add a note on conformations of base pairs.	**8**
3C	Write the significance of pyruvate dehydrogenase enzyme.	**4**
4A	Describe the structure and functions of monosaccharides.	**8**
4B	Elucidate the alpha oxidation pathway in eukaryotic cell and its utility.	**8**
4C	Explain the composition and importance of hyaluronic acid. Which MPS is principal ground tissue substance of mammalian tissue?	**4**
5A	Differentiate between the ketogenic and glucogenic amino acids. Explain the role of carbamoyl phosphate pool in cells.	**8**
5B	Explain the function electron transport system.	**8**
5C	Explain the structure of mRNA.	**4**
6A	Give an account of the function of fatty acids	**8**
6B	Explain the role of endoplasmic reticulum in metabolism	**8**

6C	Explain the role of CoA in metabolism.	**4**
7A	What are steroids? Explain the structure of ring and functions.	**8**
7B	Explain the role of splicing and processing in cell regulation	**8**
7C	Explain the uses of hyaluronic acid	**4**
8A	Write the functions of eicosanoids in detail	**8**
8B	Explain the enzyme mechanism with example.	**8**
8C	What is the significance of Km and Vmax.	**4**

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