

**MASTER OF SCIENCE (DIETETICS AND
FOOD SERVICE MANAGEMENT) (M.Sc. DFSM)**

Term-End Examination

June, 2022

MFN-002 : NUTRITIONAL BIOCHEMISTRY

Time : $2\frac{1}{2}$ hours

Maximum Marks : 75

Note :

1. Answer **five** questions in all.
2. Question no. 1 is **compulsory**.
3. All questions carry equal marks.

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1. (a) What are Isozymes ? Give one example of isozyme. $2\frac{1}{2}$
- (b) What do you understand by the term Mutarotation ? Explain giving an example. $2\frac{1}{2}$
- (c) What is Cellulose ? Give its biochemical structure. $2\frac{1}{2}$
- (d) What is the difference between the following ? $2\frac{1}{2}+2\frac{1}{2}$
- (i) n-3 and n-6 fatty acids
 - (ii) DNA and RNA

- (e) Name the biological active form of the following : $2\frac{1}{2}$
- (i) Pyridoxine
- (ii) Folate
- (iii) Vitamin D
- 2.** (a) Explain the process of absorption and transportation of lipids in our body. 8
- (b) Present a brief review on the enzymes used in clinical diagnosis. 7
- 3.** (a) What is Glucose ? Give its chemical structure and briefly explain/illustrate the metabolism of glucose in our body. 2+8
- (b) Give the metabolic significance of Hexose Monophosphate Pathway (HMP). 5
- 4.** (a) What are Fatty Acids ? How are they synthesized in our body ? Give the metabolic reactions involved in the synthesis of fatty acids. 2+8
- (b) What do you understand by the term hyperlipoproteinemias ? Enumerate the disorders of hyperlipoproteinemia. 5
- 5.** (a) What are Amino Acids ? Give the general structural formula of an amino acid. 3
- (b) What are Transamination and Deamination reactions ? Explain briefly. 7
- (c) Differentiate between Ketogenic and Glucogenic amino acids, giving examples. 5

6. (a) What is Maple Syrup Urine Disease (MSUD) ? Name the defective enzyme, amino acid involved, metabolite accumulated and beneficial diet therapy for the disease. 5
- (b) Explain the effect of the hormone Insulin on carbohydrate, protein and fat metabolism. 5
- (c) Differentiate between Group I and Group II hormones, giving examples. 5
7. Write short notes on any **three** of the following : 5+5+5
- (a) De Novo Synthesis of Purine Nucleotide
- (b) Enzyme Inhibition and its Significance
- (c) Components of Electron Transport Chain
- (d) Enzymatic and Non-enzymatic Mechanisms to limit Free Radical Damage
- (e) Visual Cycle
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