

No. of Printed Pages : 4

MFN-002

**MASTER OF SCIENCE (DIETETICS
AND FOOD SERVICE MANAGEMENT)**

[M. SC. (DFSM)]

Term-End Examination

December, 2025

MFN-002 : NUTRITIONAL BIOCHEMISTRY

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

Maximum Marks : 75

Note : (i) *Question No. 1 is compulsory.*

(ii) *Attempt **five** questions in all.*

(iii) *All questions carry equal marks.*

1. (a) Illustrate the general structure of the following : 2+2+2

(i) Fatty acid

(ii) Glucose

(iii) Amino acid

A-18/MFN-002

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- (b) What are polysaccharides ? Classify giving examples. 2
- (c) Name the coenzyme derivative (active form) of the following vitamins used in metabolism : 3
- (i) Thiamine
- (ii) Riboflavin
- (iii) Niacin
- (d) What is a holoenzyme ? 2
- (e) Give *one* example of enzyme found in
(i) Gastric juice and (ii) Pancreatic juice. 2
2. (a) What is enzyme inhibition ? Explain giving example. 7
- (b) What is a nucleotide ? Give the physiological roles of nucleotide in our body. 8
3. (a) What is hyperlipoproteinemia ? Give its classification. 5
- (b) Explain the beta-oxidation of fatty acids in our body, giving the reactions involved. 10

4. (a) What is glycolysis ? Give an account of energy production in glycolysis, illustrating the reactions involved. 2+6
- (b) What is citric acid cycle ? Give the net energy output of citric acid cycle, highlighting the equation involved. 2+5
5. (a) What is MSUD ? How is oxidative decarboxylation brought about in MSUD ? 2+5
- (b) Explain the urea cycle, giving the steps involved in converting ammonia to urea. 8
6. (a) Enumerate the steps involved in pyrimidine biosynthesis. 8
- (b) Illustrate the role of free radical in lipid peroxidation. 7
7. Write short notes on any *three* of the following : 5+5+5
- (a) Visual cycle

- (b) Role of folate in one-carbon metabolism reaction
- (c) Metabolic and hormone action of Magnesium
- (d) Structural and regulatory function of zinc in our body
- (e) Classification of hormones

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