**MFN-002**

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

## Term-End Examination

## February, 2021

## MFN-002 : NUTRITIONAL BIOCHEMISTRY

*Time : 2 $\frac{1}{2}$ hours* *Maximum Marks : 75*

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

**1.** (a) What is stereo-isomerism ? Explain giving an example. *3*

(b) What are essential fatty acids ? Give examples of essential fatty acids. *3*

(c) Present the basic structural formula of amino acid. *2*

(d) Give the active forms of the following : *3*
(i) Thiamine
(ii) Riboflavin
(iii) Niacin

(e) What are isozymes ? Give one example of an isozyme. *2*

(f) What are nucleotides ? Illustrate the structure of a nucleotide. *2*

**2.** (a) What is enzyme inhibition ? Explain the different types and significance of enzyme inhibition. *8*

(b) Describe the composition of pancreatic juice and its action in digestion process. *7*

**3.** (a) Illustrate the ATP generated reactions of glycolysis. What is the net ATP generated ? *5*

(b) What is citric acid cycle ? Give the reactions and the enzymes involved in citric acid cycle. *10*

**4.** (a) Give the reactions involved in the Beta-Oxidation of fatty acids. Where does this reaction take place ? *8+2*

(b) Differentiate between low density lipoproteins and high density lipoproteins. *5*

**5.** (a) How is ammonia removed from the body and what is that process called ? Explain. *8*

(b) What is the end product of purine degradation ? Give the steps/reactions involved in the synthesis of this end product. *7*

**6.** Explain the following briefly, giving examples : *5+5+5*

(a) Transamination reactions

(b) Components of electron transport chain

(c) Antioxidant defense system

**7.** (a) Give the defective enzyme in the following disorders : *5*

(i) Tyrosinemia

(ii) Albinism

(iii) Glycogen Storage Disease

(iv) Tay-Sachs disease

(v) Gaucher disease

(b) How will you classify hormones based on their mechanism of action ? *5*

(c) Explain the role of Vitamin D in the absorption of calcium in our body. *5*

**8.** Write short notes on any ***three*** of the following : *5+5+5*

(a) Role of free radicals in lipid peroxidation

(b) Visual Cycle

(c) Hemoglobinopathies

(d) Effect of glucocorticoid hormone on carbohydrate, protein and lipid metabolism

(e) Metabolic role of folic acid in our body