No. of Printed Pages : 3

MFN-002

MASTER OF SCIENCE (DIETETICS AND FOOD SERVICE MANAGEMENT)

03405

Term-End Examination

June, 2015

MFN-002 : NUTRITIONAL BIOCHEMISTRY

Time : 2½ hours *Maximum Marks : 75*

Note : *Answer **four** questions in **all**. Question No. **1** is **compulsory**.*

1. (a) Name the enzyme which when deficient leads to phenylketonuria. **1**

(b) Differentiate between ketosis and ketoacidosis **2**

(c) Enzyme involved in the rate limiting step of cholesterol biosynthesis. **1**

(d) What is anaplerotic reaction ? **1**

(e) Name the enzymes used in clinical diagnosis for liver diseases. **1**

(f) What is a peptide bond ? How it is formed ? **1**

(g) What is the hydrogenation property of fatty acids ? Give its uses. **2**

(h) What are simple sugars ? Give their general formula. **1**

(i) Name the enzyme involved in the oxidative decarboxylation of pyruvate to acetyl CoA. **1**

(j) Name an alternate oxidative pathway for the metabolism of glucose. **1**

(k) Name the compound that is structurally similar to retinol and can be easily converted to vitamin A. **1**

(l) Name the active form of vitamin B_5 that occurs in the body. **1**

(m) Amino acids in the diet and in the body occurs as the L isomer. Illustrate the L - amino acid. **1**

2. (a) What is enzyme inhibition ? Explain its significance and different classes. **2+2+6**

(b) Describe the composition of pancreatic juice and enumerate the digestion of proteins in our body. **5+5**

3. (a) Illustrate the role of vitamin D and parathormone in calcium homeostasis. **4+4**

(b) Enumerate the biological role of vitamin E as a natural antioxidant. **6**

(c) Explain the effect of insulin or carbohydrate and protein metabolism. **6**

4. (a) Illustrate only the Energy (ATP) generated reactions of the glycolytic pathway, highlighting the Net ATP generated. **8**

(b) Describe how the Alanine and Cori cycle function in the body. **4+4**

(c) What is oxidative phosphorylation ? **4**

5. (a) List the three steps involved in the oxidation of fatty acids. Mention the enzymes involved in the process of activation of fatty acids. **3+2**

(b) What are lipoproteins ? Give their classification and role in the body. **2+4+4**

(c) What are the various enzymes and coenzymes involved in the urea cycle ? **5**

6. Write short notes on **any four** of the following : **5+5+5+5**

(a) De Novo synthesis of Purine nucleotide.

(b) Biological role of iron in the body.

(c) Physiological mechanisms to limit free radical damage.

(d) Mechanism of hormone action.

(e) Disorders of aromatic amino acid metabolism.