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MFN-002

01365

MASTER OF SCIENCE (DIETETICS AND FOOD SERVICE MANAGEMENT)

Term-End Examination

June, 2012

MFN-002 : NUTRITIONAL BIOCHEMISTRY

Time : 2½ hours *Maximum Marks : 75*

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

1. (a) Differentiate between the following sets of terms **10**

(i) Enzyme and Holoenzyme

(ii) Glycogenesis and glycogenolysis

(iii) D-sugar and L-sugar

(iv) Ketosis and Ketoacidosis

(v) Insulin and Glucagon

(b) Fill in the blanks : **5**

(i) Phenylketonuria is a disease caused due to the deficiency of enzyme _____ which is responsible for the breakdown of phenylalanine.

(ii) Pentosuria is an inborn error of _____ metabolism characterized by the excessive urinary excretion of the sugar _____ .

(iii) The active form of pantothenic acid is _____ which is required for the metabolism of fat, protein and carbohydrate.

(iv) A _____ land is formed between a carboxylic group and an amino group with elimination of water molecule.

(v) _____ is an enzyme having different molecular form but catalyzing the same reaction.

2. (a) Explain and graphically illustrate how DNA is different from RNA. 8

(b) Give the active form of the following vitamins : 2+5+5

(i) Vitamin D

(ii) Riboflavin

(c) Discuss their biochemical functions in our body.

3. Explain the following briefly : 5+5+5+5

(a) Factors affecting enzyme activity

(b) Isomerism of monosaccharides

(c) Digestion of proteins

(d) Fatty acids _____ structure, Classification and Chemical Properties.

4. (a) What is the function of glycolysis ? Describe the reactions leading to the generation of ATP in glycolysis. 2+10

(b) What are the components of the electron transport chain ? Explain briefly. 8

5. (a) What is the site for the synthesis of fatty acids ? Explain giving the reactions involved in the de-novo synthesis of fatty acids. 2+10

(b) Explain the functions and metabolism of HDL in our body. 8

6. (a) What is the urea cycle ? Indicate the various enzymes, co-enzymes involved in the urea cycle. 10

(b) What are ketogenic and glycogenic aminoacids ? Discuss their fate in our body. 6

(c) Briefly discuss the role of Vitamin B_6 in the transamination reaction. 4

7. Write short notes on ***any Four*** of the following : 5+5+5+5

(a) Functions of folic acid

(b) Classification of hormones

(c) Tyrosinemias - Inborn error of Metabolism

(d) Biological role of iron

(e) Degradation of purine nucleotides.