

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

Term-End Examination

December, 2007

MFN-002 : NUTRITIONAL BIOCHEMISTRY

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

Maximum Marks : 75

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

1. (a) Explain the following terms in 2 – 3 sentences : **10**

- (i) Signal transduction
- (ii) n-3 fatty acids
- (iii) Denaturation of proteins
- (iv) Active transport
- (v) Anomerism

(b) Write the following structures : **5**

- (i) Methionine
- (ii) Galactose
- (iii) D'-glucuronic acid
- (iv) Retinol
- (v) Uracil

2. (a) Give the steps involved in glycolysis. Calculate the moles of ATP produced in the process. 15
- (b) Discuss the metabolic significance of the HMP pathway. 5
3. (a) Discuss the various types of enzyme inhibition. 8
- (b) Describe the functions of Vitamin D in detail. 12
4. Comment briefly on the following statements : 5+5+5+5
- (i) Urea synthesis involves both cytosol and mitochondrion.
- (ii) Anaplerotic reactions are metabolically important.
- (iii) Amino acids also have non-protein functions.
- (iv) Glutamate dehydrogenase reaction has an important role in protein catabolism.
5. (a) Group II hormones are unable to cross the plasma membrane. Explain the mechanism of entry of these hormones into the cell. 8
- (b) What are the disadvantages of the following : 12
- (i) Low activity of pyruvate dehydrogenase complex
- (ii) Delay in instituting diet therapy in PKU
- (iii) Partial hydrogenation of unsaturated oils
- (iv) Deficiency of iodine

6. (a) Discuss the advantages of the following : 12
- (i) Bile
 - (ii) Alanine cycle
 - (iii) HDL
 - (iv) Intrinsic factor
- (b) Describe the components of the electron transport chain. 8
7. Write short notes on any **four** of the following : 4×5=20
- (i) Enzymes of diagnostic importance
 - (ii) Oxidation of unsaturated fatty acids
 - (iii) Role of water-soluble vitamins in oxidation-reduction in the body
 - (iv) Phospholipids
 - (v) Functions of copper