[This question paper contains 2 printed pages.]

Sr. No. of Question Paper : 2358 **F–4** **Your Roll No.....**

Unique Paper Code : 2581403

Name of the Course : **B.Sc. (Hons.) Biomedical Science**

Name of the Paper : Medical Biochemistry

Semester : IV

Duration : 3 Hours Maximum Marks : 75

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt **five** questions in all.
3. Question No. **1** is compulsory.
4. Give structures and examples wherever necessary.

1. (a) Differentiate between the following : (2×4)
   (i) Preprohormone and Hormone
   (ii) Chylomicrons and VLDL
   (iii) Leukotrienes and Thromboxanes
   (iv) Kinetic and End Point Assay

   (b) Define : (1×6)
   (i) Hybrid isozyme
   (ii) Adiponectins
   (iii) P/O ratio
   (iv) LDH switch
   (v) RDA
   (vi) Glycoconjugates

   (c) Give structure of the following : (1×2)
   (i) PGH_2
   (ii) Cholesterol

   (d) Give reaction catalyzed (with structure) by ALT. Also give the clinical significance of the enzyme. (3)

P.T.O.

(e) Justify the following statements : (2×4)

(i) Nitric oxide functions as a hormone

(ii) The concentration of glucose in plasma is subject to tight regulation

(iii) Cholesterol acts as a precursor for many other molecules

(iv) Human obesity is not necessarily due to insufficient leptin production

2. Write short notes on : (3×4)

(i) Lipoproteins

(ii) Function and synthesis of calcitrol

(iii) Role of a vitamin as biological antioxidants

(iv) Chemiosmotic theory

3. Give the biochemical significance of the following : (3×4)

(i) LCAT on HDL

(ii) Statins

(iii) Protein glycosylation for quality control in ER

(iv) Creatine kinase level in myocardial infarction

4. (i) Give detailed reaction for the synthesis of mevalonate from acetate.

(ii) Discuss the role of enzymes for diagnosis of various diseases. Give two suitable examples.

(iii) Give detailed mechanism of action of thyroid hormone. (4×3)

5. (i) How is the cholesterol biosynthesis regulated at the transcriptional level ? Explain with diagram.

(ii) Name the hormone/coenzyme derivative of the following vitamins and the disease associated with their deficiency

Vitamin B2, Vitamin C, Vitamin E, Vitamin B3 (4,8)

6. (i) Discuss the fuel metabolism in liver during prolonged fasting.

(ii) Leptin makes the cells of liver and muscle more sensitive to insulin. Justify the statement with a suitable diagram.

(iii) Give diagrammatic representation of malate-aspartate shuttle and discuss its significance. (4×3)

(200)