

MANIPAL UNIVERSITY**M.Sc. MEDICAL (FINAL) BIOCHEMISTRY DEGREE EXAMINATION – FEBRUARY 2011****PAPER I: CHEMICAL NATURE AND METHODS OF STUDY OF BIOCHEMICAL COMPOUNDS AND ENZYMES**

Monday, February 07, 2011

Time: 14:00 – 17:00 Hrs.

Maximum Marks: 100

- ✍ Answer any FIVE Questions. All questions carry equal marks.
- ✍ Write answers that are brief, clear, relevant and legible.
- ✍ Illustrate your answers with neatly drawn and correctly labeled diagrams wherever appropriate.

1. Explain the principle of spectrophotometry and its application in clinical chemistry.
2. Describe the structure of different types of RNAs and add a note on their functions.
3. Describe the structural features and biological importance of
 - 3A. Lecithin
 - 3B. Heme
 - 3C. NAD⁺
 - 3D. Sphingomyelins
4. Write short notes on:
 - 4A. Isoelectric pH
 - 4B. Radio immuno assay
 - 4C. Cloning
 - 4D. Interleukins
5. Explain the effect the substrate concentration on enzyme activity. How do you determine the K_m value? What is its significance?
6. Write short notes on:
 - 6A. Restriction endoneucleases
 - 6B. Structure of glycogen
 - 6C. Donnan membrane equilibrium
 - 6D. Biological importance of side chains of amino acids in proteins.



MANIPAL UNIVERSITY**M.Sc. MEDICAL (FINAL) BIOCHEMISTRY DEGREE EXAMINATION – FEBRUARY 2011****PAPER II: INTERMEDIARY METABOLISM**

Tuesday, February 08, 2011

Time: 14:00 – 17:00 Hrs.

Maximum Marks: 100

- ✍ **Answer any FIVE Questions. All questions carry equal marks.**
- ✍ **Write answers that are brief, clear, relevant and legible.**
- ✍ **Illustrate your answers with neatly drawn and correctly labeled diagrams wherever appropriate.**

1. Discuss the metabolism of glycogen. Add a note on glycogen storage disorders.
2. Describe the metabolism of glycine under the following headings:
Biosynthesis, catabolism, special compounds derived from it and associated disorders.
3. Explain the metabolic changes during starvation with emphasis on ketogenesis and ketolysis.
- 4A. How uric acid is formed from purine nucleotides?
- 4B. Discuss the salvage pathways in purine and pyrimidine metabolism.
5. Write short notes on:
 - 5A. Role of ATP in muscle contraction.
 - 5B. Antimetabolites.
- 6A. Discuss the post-transcriptional modifications of different types of RNAs.
- 6B. Explain DNA repair mechanisms.



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M.Sc. MEDICAL (FINAL) BIOCHEMISTRY DEGREE EXAMINATION – FEBRUARY 2011
PAPER III: CLINICAL BIOCHEMISTRY AND NUTRITION

Wednesday, February 09, 2011

Time: 14:00 – 17:00 Hrs.

Maximum Marks: 100

- ✍ Answer any FIVE Questions. All questions carry equal marks.
- ✍ Write answers that are brief, clear, relevant and legible.
- ✍ Illustrate your answers with neatly drawn and correctly labeled diagrams wherever appropriate.
1. Give an account of vitamin A. Add a note on the associated disorders.
 2. How is the nutritive value of protein assessed? Describe protein energy malnutrition.
 3. Describe the 'fluid mosaic model' of the cell membrane. Describe experimental evidence in support of this model. Briefly describe facilitated diffusion.
 4. Describe the laboratory assessment of thyroid function.
 5. Describe the metabolism of heme. Add a note on disorders.
 6. Write short notes on:
 - 6A. Phosphatidyl inositol
 - 6B. Tumor markers
 - 6C. Reactive oxygen species
 - 6D. Quality control in clinical laboratory.

