

MANIPAL UNIVERSITY

M. Sc. (FINAL) BIOCHEMISTRY DEGREE EXAMINATION – AUGUST 2007

**PAPER I: CHEMICAL NATURE AND METHODS OF STUDY OF BIOCHEMICAL
COMPOUNDS AND ENZYMES**

Wednesday, August 01, 2007

Time available: 3 Hours

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 labelled diagrams wherever appropriate.**

1. Explain the different steps involved in the purification and characterization of enzymes.
2. What are isotopes? What are their applications in clinical diagnosis?
3. Discuss mechanism of action of enzymes.
4. Discuss the method of cell fractionation. How to assess purity of the subcellular fractions?
5. Describe the structural features of DNA.
6. Write short notes on:
 - 6A. ELISA.
 - 6B. Chemistry and functions of glycolipids.
 - 6C. The relationship between free energy change and equilibrium constant.
 - 6D. Southern blot.

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PAPER II: INTERMEDIARY METABOLISM

Thursday, August 02, 2007

Time available: 3 Hours

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 labelled diagrams wherever appropriate.**

- 1A. How is triacylglycerol synthesized in adipose tissue? What is the source of glycerol in this tissue?
- 1B. Describe the synthesis of lecithin.
2. Describe the detoxification of ammonia in the body. Briefly describe the inborn errors associated with it.
3. Discuss the metabolic fates of glycine.
4. Give an account of glycolysis and its regulation.
5. Write notes on:
 - 5A. Transmethylation.
 - 5B. Okazaki fragments.
 - 5C. Phenyl ketonuria.
 - 5D. Lesch-Nyhan syndrome.
- 6A. Briefly describe the events in transcription of RNA.
- 6B. Post transcriptional processing of hnRNA.



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PAPER III: CLINICAL BIOCHEMISTRY AND NUTRITION

Friday, August 03, 2007

Time available: 3 Hours

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 labelled diagrams wherever appropriate.**

1. Describe the source, RDA, biochemical functions and deficiency manifestations of folic acid.
- 2A. Explain endocytosis.
- 2B. Give normal ranges of serum electrolytes. Discuss their significance in clinical evaluation.
- 3A. What are the effects of malnutrition in a child, with special emphasis on brain development?
- 3B. Discuss the role of diet in the management of diabetes mellitus.
4. Describe the synthesis and functions of adrenal gland hormones.
- 5A. Write the biochemical defects and management of atherosclerosis.
- 5B. Discuss the abnormal constituents in urine and their significance.
6. Write short notes on:
 - 6A. Glycated hemoglobin.
 - 6B. Zinc.
 - 6C. Reactive oxygen species.
 - 6D. Membrane transport systems.