

MANIPAL ACADEMY OF HIGHER EDUCATION

(Deemed University)

M.Sc. (FINAL) BIOCHEMISTRY DEGREE EXAMINATION – JUNE 2004

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

Tuesday, June 22, 2004

Time available: 3 Hours

Maximum Marks: 100

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- 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.
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1. Explain in detail the principle of the following methods with one example for each.
 - 1A. Agarose gel electrophoresis.
 - 1B. SDS-Polyacrylamide gel electrophoresis.

2. Describe the concept of pH and the importance of Henderson-Hasselbalch equation. With a diagram describe the pKa of an amino acid with aliphatic side chain.

3. Give short answers:
 - 3A. Classification of amino acids.
 - 3B. Significance of pKa in amino acid side chain.
 - 3C. Isoelectric pH.
 - 3D. Draw and label the structure of IgG.

4. Describe the structure of B – form(Watson & Crick Model) of DNA. Compare the different structures of DNA.

5. Classify lipids. Define the classes and subclasses with examples.

6. Describe the following:
 - 6A. Allosteric regulation in enzymes.
 - 6B. Significance of Michaelis-Menton equation.



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PAPER III: CLINICAL BIOCHEMISTRY NUTRITION

Thursday, June 24, 2004

Time available: 3 Hours

Maximum Marks: 100

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- 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.
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1. Describe the chemistry and function of
 - 1A. Vitamin E
 - 1B. Vitamin C

2. Give an account of signal transduction with suitable example.

3. Explain the commonly employed liver function tests and their clinical significance.
 - 4A. What is the importance of protein in balanced diet?
 - 4B. How is the nutritive value of proteins assessed?

5. Write short notes on:
 - 5A. Tumor markers
 - 5B. Quality control
 - 5C. ELISA
 - 5D. Blood urea

6. Describe the methods employed to diagnose inborn errors of metabolism with suitable examples.

