

MANIPAL ACADEMY OF HIGHER EDUCATION
(Deemed University)

MSc (FINAL) BIOCHEMISTRY DEGREE EXAMINATION

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

Monday, 27 November 2000

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 labeled diagrams wherever appropriate
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1. Explain cell fractionation and biochemical activity of the different fractions.
2. Define enzyme. Describe factors influencing enzyme reaction. Give an account of isoenzymes.
3. Describe the chemical natures of lipoproteins, immunoglobulins and glycoproteins.
4. Write short notes on :
 - 4A. t-RNA
 - 4B. Ribosomes
 - 4C. Isotopes
 - 4D. Spectrofluorimetry
5. Write briefly on :
 - 5A. HPLC
 - 5B. Essential fatty acids
6. Write short notes on :
 - 6A. Isoelectric focussing
 - 6B. PAGE (Polyacrylamide Gel Electrophoresis)
 - 6C. Immunodiffusion technique
 - 6D. Write the structure of
 - i. ATP
 - ii. NAD
 - iii. Cystathionine
 - iv. Prostanic Acid
 - v. Ascorbic Acid

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PAPER II : *INTERMEDIARY METABOLISM*

Tuesday, 28 November 2000

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 labeled diagrams wherever appropriate.
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1. Discuss the importance of gluconeogenesis in starvation.
2. Write short notes on :
 - 2A. Role of promoters in transcription
 - 2B. Lesch-Nyhan Syndrome
 - 2C. Telomerase
 - 2D. Hormone-sensitive lipase
3. Discuss the role of 1-carbon units in metabolism.
4. Describe the different types of sphingolipidoses.
5. Describe the replication of DNA. Add a note on its regulation.
6. Write short notes on :
 - 6A. Inherited disorders of fructose metabolism
 - 6B. Role of caspases
 - 6C. Heat shock proteins
 - 6D. Somatic recombination

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PAPER III : *CLINICAL BIOCHEMISTRY AND NUTRITION*

Wednesday, 29 November 2000

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 labeled diagrams wherever appropriate.
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1. Discuss the biosynthesis of heme and add a note on its regulation. Name types of porphyrias indicating the defective enzyme.

2. Write briefly on :
 - 2A. Lymphokines
 - 2B. Oncogenes
 - 2C. Tumour markers
 - 2D. Write the normal serum value and give their significance
 - i. Cholesterol
 - ii. Total proteins
 - iii. Potassium
 - iv. Sodium
 - v. Uric acid

3. What are second messengers ? Describe the mechanism of action of different second messengers.

- 4A. Discuss the different biochemical tests for assessment of gastric function.
- 4B. Explain the nutritional importance of proteins. Write a note on protein energy malnutrition.

5. Describe the biochemistry and measures to prevent atherosclerosis.

6. Write an essay of vitamin C.