

Reg. No.

MANIPAL UNIVERSITY

MD (BIOCHEMISTRY) DEGREE EXAMINATION – APRIL 2010

SUBJECT: PAPER I: BIOORGANIC AND BIOPHYSICAL CHEMISTRY AND
BIOCHEMICAL TECHNIQUES

Monday, April 05, 2010

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ Answer ALL the questions.

1. Describe the principle and applications of various biochemical techniques commonly employed in molecular biology.
(30 marks)
2. Discuss the various levels of protein structure. Add a brief note on the methods used to elucidate the structure of a protein.
(20 marks)
3. Briefly describe:
 - 3A. Enzyme linked immunosorbent assay.
 - 3B. Electron transport chain.
 - 3C. Ion selective electrodes.(10×3 = 30 marks)
4. Describe the structural organization of a biomembrane and the mechanism involved in the membrane transport.
(20 marks)



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SUBJECT: PAPER II: INTERMEDIARY METABOLISM

Tuesday, April 06, 2010

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ Answer ALL the questions.

1. Describe metabolism of phenylalanine and tyrosine. Add notes on formation of biologically important compounds and inborn errors of this metabolic pathway. (25 marks)
2. Gluconeogenesis is not a reversal of glycolytic pathway. Discuss. (25 marks)
3. Explain transcription of a gene and its regulation. (25 marks)
4. Write notes on:
 - 4A. Hyperuricemia and Gout.
 - 4B. Glucose 6-phosphate dehydrogenase deficiency.
 - 4C. Nucleotide-excision repair system.

(8+8+9 = 25 marks)



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SUBJECT: PAPER III: ENZYMES, NUTRITION AND SPECIALIZED TISSUES

Wednesday, April 07, 2010

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ Answer ALL the questions.

1. Describe allosteric regulation of enzymes. How relevant and significant are their role in regulation of metabolic pathways?

(25 marks)

2. Discuss the importance of carbohydrates in the balanced diet.

(25 marks)

3. Write an account on:

3A. Thiamine.

3B. Vitamin E.

HEALTH SCIENCES LIBRARY

(10×2 = 20 marks)

4. Write short notes on:

4A. Fibroblasts in connective tissue.

4B. Wilson disease.

4C. Proteins of connective tissue.

(10×3 = 30 marks)



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SUBJECT: PAPER IV: CLINICAL BIOCHEMISTRY

Thursday, April 08, 2010

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ **Answer ALL the questions.**

HEALTH SCIENCES LIBRARY

1. Discuss how would you proceed to biochemically investigate a patient with acid-base disorder.
(20 marks)
2. Describe the various concepts and methods to be considered while implementing a quality control programme in a clinical biochemistry laboratory.
(30 marks)
3. Discuss the clinical utility of isoenzyme studies.
(20 marks)
4. **Discuss briefly:**
 - 4A. Biochemical mechanism of carcinogenesis.
 - 4B. Biochemical risk markers of atherosclerosis.
(15×2 = 30 marks)

