

MANIPAL UNIVERSITY**MD (BIOCHEMISTRY) DEGREE EXAMINATION – APRIL 2011****SUBJECT: PAPER I: BIOORGANIC AND BIOPHYSICAL CHEMISTRY AND
BIOCHEMICAL TECHNIQUES**

Monday, April 04, 2011

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ Answer ALL the questions.

1. Explain the principle and applications of different types of electrophoresis.
(20 marks)
2. Describe the structure of membrane. Explain various transport mechanism across the membrane with examples.
(20 marks)
3. Discuss the principle, process, and applications of recombinant DNA technology.
(20 marks)
4. **Write short notes on:**
 - 4A. Heteropolysaccharides
 - 4B. RFLP
 - 4C. Hybridoma technology
 - 4D. Protein sequencing

(10×4 = 40 marks)



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MANIPAL UNIVERSITY

MD (BIOCHEMISTRY) DEGREE EXAMINATION – APRIL 2011

SUBJECT: PAPER II: INTERMEDIARY METABOLISM

Tuesday, April 05, 2011

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ **Answer ALL the questions.**

1. Describe the glycogen metabolism in the body with a note on its regulation. (20 marks)
2. Explain the metabolism and specialized compounds formed from tyrosine. (20 marks)
3. Describe the metabolic pathways of purine synthesis and their regulation. (20 marks)
4. **Write short notes on:**
 - 4A. Mutations.
 - 4B. DNA repair.
 - 4C. Telomerase.
 - 4D. Lipid transport.

(10×4 = 40 marks)



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MANIPAL UNIVERSITY

MD (BIOCHEMISTRY) DEGREE EXAMINATION – APRIL 2011

SUBJECT: PAPER III: ENZYMES, NUTRITION AND SPECIALIZED TISSUES

Wednesday, April 06, 2011

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ Answer ALL the questions.

1. Discuss the clinical utility of isoenzyme studies with suitable examples. (20 marks)
2. Describe membrane transport systems and disorders associated. (20 marks)
3. Discuss in detail the signal transduction pathways. (20 marks)
4. Write short notes on:
 - 4A. Ubiquitins.
 - 4B. Atherosclerosis.
 - 4C. Iron absorption.
 - 4D. Acute phase proteins.

(10×4 = 40 marks)



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MANIPAL UNIVERSITY

MD (BIOCHEMISTRY) DEGREE EXAMINATION – APRIL 2011

SUBJECT: PAPER IV: CLINICAL BIOCHEMISTRY

Thursday, April 07, 2011

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ **Answer ALL the questions.**

1. Discuss the various liver function tests.
(20 marks)
2. Describe the biochemical/metabolic changes observed in diabetes mellitus.
(20 marks)
3. Discuss the clinical utilities of various tumor markers.
(20 marks)
4. **Write short notes on:**
 - 4A. Proteinuria
 - 4B. Metabolic acidosis
 - 4C. Oncogenes
 - 4D. Serum VMA estimation

(10×4 = 40 marks)

