

MANIPAL ACADEMY OF HIGHER EDUCATION

(Deemed University)

MD (BIOCHEMISTRY) DEGREE EXAMINATION – JULY 2005**SUBJECT: PAPER I: BIOORGANIC AND BIOPHYSICAL CHEMISTRY AND
BIOCHEMICAL TECHNIQUES**

Monday, July 04, 2005

Time: 3 Hrs.

Max. Marks: 100

☞ Answer all the questions.

1. How do you isolate immunoglobulin G from human serum? How can you determine the purity of the same?

(25 marks)

- 2A. Describe the principles and practical aspects of thin layer chromatography.

- 2B. Give the details of radio immunoassay.

(10+15 = 25 marks)

3. Explain the secondary, tertiary and quaternary structures of protein, giving examples of hemoglobin and collagen molecules.

(25 marks)

4. Write short notes on:

- 4A. Polymerase chain reaction.

- 4B. Sequence determination of DNA.

(10+15 = 25 marks)

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MD (BIOCHEMISTRY) DEGREE EXAMINATION – JULY 2005

SUBJECT: PAPER II: INTERMEDIARY METABOLISM

Tuesday, July 05, 2005

Time: 3 Hrs.

Max. Marks: 100

Answer all the questions.

1. Describe glycogenolysis in liver and its regulation.

(25 marks)

2. Explain beta oxidation of saturated fatty acids.

(20 marks)

3. Describe the transcription process, and its regulation. What are the post-transcriptional modifications?

(25 marks)

4. Write short notes on:

4A. Orotic aciduria.

4B. Reverse transcriptase.

4C. Polyamines.

(10+10+10 = 30 marks)

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MD (BIOCHEMISTRY) DEGREE EXAMINATION – JULY 2005**SUBJECT: PAPER III: ENZYMES, NUTRITION AND SPECIALIZED TISSUES**

Wednesday, July 06, 2005

Time: 3 Hrs.

Max. Marks: 100

✍ **Answer all the questions.**

1. Discuss the mechanisms available to regulate enzyme activity. Illustrate with appropriate examples.

(25 marks)

2. Describe the biochemical basis for the various signs and symptoms of protein energy malnutrition.

(25 marks)

3. Discuss metabolism of folic acid and Vitamin B₁₂. Describe the “folate trap” hypothesis.

(25 marks)

4. Write briefly on:

4A. Active transport.

4B. Nitric oxide.

4C. Brown adipose tissue.

(25 marks)

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MD (BIOCHEMISTRY) DEGREE EXAMINATION – JULY 2005**SUBJECT: PAPER IV: CLINICAL BIOCHEMISTRY**

Thursday, July 07, 2005

Time: 3 Hrs.

Max. Marks: 100

Answer all the questions.

1. Describe commonly employed liver function tests and their significance.

(25 marks)

2. Explain the metabolic changes in diabetes mellitus.

(25 marks)

3. How are serum lipoproteins formed and metabolized? How lipoprotein profiles are useful in assessment of health?

(25 marks)

4. Write short notes on:

4A. Oncogenes.

4B. Anion gap.

4C. T-lymphocytes.

4D. Alkaline phosphatase.

(7+6+6+6 = 25 marks)



MANIPAL ACADEMY OF HIGHER EDUCATION

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MD (BIOCHEMISTRY) DEGREE EXAMINATION – DECEMBER 2005**SUBJECT: PAPER I: BIOORGANIC AND BIOPHYSICAL CHEMISTRY AND
BIOCHEMICAL TECHNIQUES**

Monday, December 05, 2005

Time: 3 Hrs.

Max. Marks: 100

✍ **Answer ALL the questions.**

1. Write the principles and applications of immunodiffusion methods. Describe two different immunodiffusion methods.

(25 marks)

2. Describe the different levels of protein structure.

(25 marks)

3. Explain the principles and applications of:
 - 3A. Gel filtration chromatography.
 - 3B. Polymerase chain reaction.

(25 marks)

4. Discuss:
 - 4A. Isomerism in monosaccharides.
 - 4B. Role of tRNA in protein synthesis.

(25 marks)

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MANIPAL ACADEMY OF HIGHER EDUCATION

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MD (BIOCHEMISTRY) DEGREE EXAMINATION – DECEMBER 2005

SUBJECT: PAPER II: INTERMEDIARY METABOLISM

Tuesday, December 06, 2005

Time: 3 Hrs.

Max. Marks: 100

✍ Answer ALL the questions.

1. Describe the metabolism of sulfur containing amino acids and discuss briefly their role in formation of bioamines.

(25 marks)

2. Describe the hexose monophosphate shunt pathway. Add a note on its significance and the disorders associated with it.

(25 marks)

3. Write short notes on:

3A. Detoxication.

3B. Fatty acid synthase complex.

3C. Catabolism of purine bases.

(10+10+10 = 30 marks)

4. Write short notes on:

4A. Digestion and absorption of triglycerides.

4B. Amphibolic role of the tricarboxylic acid cycle.

(10+10 = 20 marks)

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MD (BIOCHEMISTRY) DEGREE EXAMINATION – DECEMBER 2005

SUBJECT: PAPER III: ENZYMES, NUTRITION AND SPECIALIZED TISSUES

Wednesday, December 07, 2005

Time: 3 Hrs.

Max. Marks: 100

✍ Answer ALL the questions.

1. What are the salient features of a balanced diet? How do you prescribe a balanced diet for a male student of 25 years?

(25 marks)

2. Describe the sources, metabolic functions and deficiency manifestations of Vitamin K.

(20 marks)

3A. Discuss the composition of connective tissue.

3B. Describe the mechanism of muscle contraction.

(10+15 = 25 marks)

4. Write short notes on:

4A. ELISA.

4B. Cell cycle.

(15+15 = 30 marks)

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MD (BIOCHEMISTRY) DEGREE EXAMINATION – DECEMBER 2005

SUBJECT: PAPER IV: CLINICAL BIOCHEMISTRY

Thursday, December 08, 2005

Time: 3 Hrs.

Max. Marks: 100

✍ Answer ALL the questions.

1. Describe the significance of serum enzymes and isoenzyme profile estimations in the diagnosis and management of myocardial ischemia and alcoholic liver disease.

(25 marks)

2. Discuss the role of biochemical investigations in the management of disorders with acid base disturbances.

(25 marks)

3. Write an essay on prevention and management of occupational health hazards in the clinical laboratory.

(25 marks)

4. Write an essay on tumour markers in the diagnosis and management of malignant disorders.

(25 marks)

