Reg. No.										

MANIPAL ACADEMY OF HIGHER EDUCATION

(Deemed University)

FIRST MBBS DEGREE EXAMINATION – MAY/JUNE 2005

SUBJECT: BIOCHEMISTRY– PAPER I (ESSAY)

Monday, June 06, 2005

Time: 10:20 – 13:00 Hours. Maximum Marks: 40

- ***Illustrate your answers with diagrams and flow charts wherever appropriate***
- ***Write brief, clear, relevant and legible answers***

1. Describe the reactions of β-oxidation of fatty acids. Give the biochemical basis for the occurrence of ketoacidosis during starvation.

(4+2 = 6 marks)

2. Write the composition of the following:
   a) Sucrose b) Hyaluronic acid c) Glutathione d) Lecithin.

(4 marks)

3. Classify enzymes with one example to each class.

(3 marks)

4. Give reasons for the following:

4A. Serum proteins move towards anode during electrophoresis at pH 8.6

4B. Glucagon can not prevent hypoglycemia in Von Gierke's disease.

4C. The inhibitor amobarbital does not affect the oxidation of succinate through respiratory chain.

4D. Defective synthesis of VLDL may result in fatty liver.

(1×4 = 4 marks)

5. Briefly explain the following

5A. Denaturation of proteins.

5B. Metabolic effects of insulin.

(2+2 = 4 marks)

6. Write the reactions by which glycine is synthesized and catabolised. Name four biochemically important compounds derived from glycine and indicate their functions.

(4+2 = 6 marks)

7. Give the components of electron transport chain in order and indicate the ATP generating sites.

(3 marks)

8. Describe the tricarboxylic acid cycle and explain its significance.

(4+2 = 6 marks)

9. Write brief notes on:

9A. Digestion and absorption of dietary triacylglycerol.

9B. Effect of substrate concentration on enzyme activity.

(2+2 = 4 marks)

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MANIPAL ACADEMY OF HIGHER EDUCATION

(Deemed University)

FIRST MBBS DEGREE EXAMINATION – MAY/JUNE 2005

SUBJECT: BIOCHEMISTRY– PAPER II (ESSAY)

Tuesday, June 07, 2005

Time: 10:20–13:00 Hours Maximum Marks: 40

- ***Illustrate your answers with diagrams and flow charts wherever appropriate***
- ***Write brief, clear, relevant and legible answers***

1. Describe the process of translation with the help of neat labeled diagram. Add a note on post translational modifications.

(4+2 = 6 marks)

2. With the help of a diagram, describe the salient structural features of DNA.

(3 marks)

3. Discuss the regulation of gene expression with the example of lac operon.

(3 marks)

4. Give biochemical explanations for following statements:

4A. Mutation of a codon need not result in alteration of amino acid sequence in the protein.

4B. Delay in wound healing is observed in vitamin C deficiency.

4C. Patients with biliary tract obstruction may show prolonged prothrombin time.

4D. Urinary urobilinogen is increased in pre hepatic jaundice.

(1×4 = 4 marks)

5 Write brief notes on

5A. Tumour markers.

5B. Polymerase chain reaction.

5C. Protein calorie malnutrition.

(2×3 = 6 marks)

6. Describe the heme biosynthesis pathway. Add a note on acute intermittent porphyria.

(4+2 = 6 marks)

7. Discuss vitamin A under following headings:

7A. Biochemical functions.

7B. Deficiency features.

(3+2 = 5 marks)

8. Describe the salient features of a cell membrane with the help of a labeled diagram.

(3 marks)

9. Write brief notes on:

9A. Metabolic acidosis.

9B. Regulation of serum calcium level.

(2+2 = 4 marks)

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MANIPAL ACADEMY OF HIGHER EDUCATION

(Deemed University)

FIRST MBBS DEGREE EXAMINATION – AUGUST 2005

SUBJECT: BIOCHEMISTRY– PAPER I (ESSAY)

Tuesday, August 16, 2005

Time: 10:20 – 13:00 Hours. Maximum Marks: 40

- ***Illustrate your answers with diagrams and flow charts wherever appropriate***
- ***Write brief, clear, relevant and legible answers***

1. Explain gluconeogenesis pathway with emphasis on the key reactions and the precursors used.

(6 marks)

2. Classify enzymes. Give one example each for any three classes with complete reaction.

(2 marks)

3. Describe the classification of lipids giving examples to each class of lipids.

(2 marks)

4. Give an account of digestion and absorption of triacylglycerol in human GI system.

(2 marks)

5. Write notes on:

5A. Role of citrate in fatty acid synthesis

5B. 2,3- Bisphosphoglycerate (2,3-BPG)

5C. HDL (High Density Lipoprotein)

5D. Isoenzymes

(2+2+2+2 = 8 marks)

6. Discuss the metabolism of sulfur-containing amino acids.

(6 marks)

7. Define an uncoupler. Give two examples of uncouplers with mechanism of action.

(2 marks)

8. Explain the significance of the citric acid cycle.

(2 marks)

9. Explain denaturation of proteins. Name any four denaturing agents.

(1+1 = 2 marks)

10. Write short notes on:

10A. Serotonin

10B. Creatine

10C. Malate shuttle

10D. Alkaptonuria

(2+2+2+2 = 8 marks)

Reg. No.										

MANIPAL ACADEMY OF HIGHER EDUCATION

(Deemed University)

FIRST MBBS DEGREE EXAMINATION – AUGUST 2005

SUBJECT: BIOCHEMISTRY– PAPER II (ESSAY)

Wednesday, August 17, 2005

Time: 10:20–13:00 Hours Maximum Marks: 40

- ***Illustrate your answers with diagrams and flow charts wherever appropriate***
- ***Write brief, clear, relevant and legible answers***

1. Describe the steps of protein synthesis with neat diagrams.

(6 marks)

2. Give the normal serum uric acid level. Write a note on Gout.

(3 marks)

3. What are tumor markers? Explain their uses with examples.

(3 marks)

4. What are restriction endonucleases? Give their significance.

(2 marks)

5. Explain northern blotting technique.

(2 marks)

6. Write a note on:
6A. Gene Library
6B. Structure of mRNA

(2+2 = 4 marks)

7. Explain the biosynthesis, functions and deficiency symptoms of Vitamin D.

(6 marks)

8. Write briefly on absorption of iron.

(3 marks)

9. List out the kidney function tests. Add a note on creatinine clearance test.

(3 marks)

10. Define Biological value of protein. What is its importance?

(2 marks)

11. Discuss the importance of carbohydrates in a balanced diet.

(2 marks)

12. Write briefly on:
12A. Metabolic acidosis.
12B. Acute intermittent porphyria.

(2+2 = 4 marks)