Reg. No.										

MANIPAL ACADEMY OF HIGHER EDUCATION

(Deemed University)

MD (BIOCHEMISTRY) DEGREE EXAMINATION – JULY 2006

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

Monday, July 03, 2006

Time: 3 Hrs. Max. Marks: 100

Answer ALL the questions.

1. What are the methods for quantitative estimation of proteins in a biological sample. Give details of any three methods.

(20 marks)

2. Describe the structure of B-DNA. Highlight the salient features of the other forms of DNA. Add a note on DNA melting.

(20 marks)

3. Describe the principles and applications of the following:

3A. Ion exchange chromatography.

3B. Fluorometry.

3C. Recombinant DNA technology.

(30 marks)

4. Write short notes on:

4A. Structure of immunoglobulin.

4B. Hybridoma technology.

4C. Proteoglycans.

(10+10+10 = 30 marks)

Reg. No.										

MANIPAL ACADEMY OF HIGHER EDUCATION

(Deemed University)

MD (BIOCHEMISTRY) DEGREE EXAMINATION – JULY 2006

SUBJECT: PAPER II: INTERMEDIARY METABOLISM

Tuesday, July 04, 2006

Time: 3 Hrs. Max. Marks: 100

Answer ALL the questions.

1A. Discuss the role of cyt P450 in detoxification of xenobiotics.

1B. Describe the biochemical basis for the development of fatty liver. Add a note on lipotropic factors.

(10+15 = 25 marks)

2A. Describe the metabolism of the sulfur containing amino acids. Add a note on the associated disorders.

2B. Discuss the role of folate in 'one carbon' metabolism.

(15+10 = 25 marks)

3A. Describe the components of the electron transport chain.

3B. Discuss the correlation of metabolic pathways active during fasting state.

(10+10 = 20 marks)

4A. Discuss the importance of PRPP in purine and pyrimidine metabolism.

4B. Describe the elongation phase of translation and their inhibitors.

4C. Describe the formation and fate of heme.

(10×3 = 30 marks)

Reg. No.										

MANIPAL ACADEMY OF HIGHER EDUCATION

(Deemed University)

MD (BIOCHEMISTRY) DEGREE EXAMINATION – JULY 2006

SUBJECT: PAPER III: ENZYMES, NUTRITION AND SPECIALIZED TISSUES

Wednesday, July 05, 2006

Time: 3 Hrs. Max. Marks: 100

Answer ALL the questions.

1. Discuss the significance of Km and Vmax with suitable example.

(20 marks)

2. Describe the requirement, sources, metabolic functions and deficiency manifestations of vitamin D. Discuss the biochemical tests to evaluate vitamin D status.

(20 marks)

3A. Write an essay on total parenteral nutrition. Add a note on its complications.

3B. What are the functions of copper? Describe the abnormalities in copper metabolism.

3C. Discuss how will you biochemically investigate the nutritional status of an individual.

(10×3 = 30 marks)

4. Write short notes on:

4A. Formation and degradations of Acetyl choline.

4B. Phagocytosis.

4C. Fibrinogen.

(10×3 = 30 marks)

Reg. No.										

MANIPAL ACADEMY OF HIGHER EDUCATION

(Deemed University)

MD (BIOCHEMISTRY) DEGREE EXAMINATION – JULY 2006

SUBJECT: PAPER IV: CLINICAL BIOCHEMISTRY

Thursday, July 06, 2006

Time: 3 Hrs. Max. Marks: 100

Answer ALL the questions.

1. Describe the biochemical basis for impaired glucose tolerance. Discuss the role of clinical biochemistry laboratory in the diagnosis and management of diabetes mellitus.

(25 marks)

2. Describe the various types of hyper lipoproteinemia. Discuss the role of biochemical investigations in their diagnosis and management.

(15 marks)

3. Discuss the biochemical investigations that would be useful in persons residing in areas with endemic goiter.

(20 marks)

4. Write short notes on:

4A. Apoptosis.

4B. Calcium as second messenger.

4C. Glycogen storage diseases.

4D. Serum creatinine vs serum urea for evaluation of renal function.

(10×4 = 40 marks)

Reg. No.										

MANIPAL ACADEMY OF HIGHER EDUCATION

(Deemed University)

MD (BIOCHEMISTRY) DEGREE EXAMINATION – DECEMBER 2006

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

Monday, December 04, 2006

Time: 3 Hrs. Max. Marks: 100

✍ **Answer ALL the questions.**

1. How do you isolate and purify ceruloplasmin from pooled serum?

(20 marks)

2. Discuss the principles of various methods available to quantitate Na+ in biological fluids.

(20 marks)

3. Write short notes on:

3A. Chemical nature of cholesterol.

3B. Structure and chemical properties of chondroitin sulphate.

3C. Radioisotopes in diagnosis.

(10×3 = 30 marks)

4. Write short notes on:

4A. Polymerase chain reaction.

4B. Southern blot technique.

4C. Restriction fragment length polymorphism.

(10×3 = 30 marks)

Reg. No.										

MANIPAL ACADEMY OF HIGHER EDUCATION

(Deemed University)

MD (BIOCHEMISTRY) DEGREE EXAMINATION –DECEMBER 2006

SUBJECT: PAPER II: INTERMEDIARY METABOLISM

Tuesday, December 05, 2006

Time: 3 Hrs. Max. Marks: 100

✍ **Answer ALL the questions.**

1. Discuss the formation, fate and detoxification of ammonia. Discuss the causes and biochemical basis for management of hyperammonia.

(20 marks)

2. Describe the cholesterol biosynthesis and metabolism. Add a note on familial hypercholesterolemia.

(20 marks)

3. Write short notes on:

3A. Metabolic significance of succinyl CoA.

3B. Genetic code.

3C. Specialized compounds formed from tyrosine.

(10×3 = 30 marks)

4. Write short notes on:

4A. Digestion and absorption of carbohydrates and the associated disorders.

4B. Importance of thiamine and biotin in biochemical pathways.

4C. DNA damage and repair.

(10×3 = 30 marks)

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MANIPAL ACADEMY OF HIGHER EDUCATION

(Deemed University)

MD (BIOCHEMISTRY) DEGREE EXAMINATION –DECEMBER 2006

SUBJECT: PAPER III: ENZYMES, NUTRITION AND SPECIALIZED TISSUES

Wednesday, December 06, 2006

Time: 3 Hrs. Max. Marks: 100

✍ **Answer ALL the questions.**

1. Compare the competitive and non-competitive inhibitions of enzymes and give suitable examples. Explain the use of inhibitors in the assay of iso enzymes.

(20 marks)

2. Describe the mechanism of muscle contraction. Write a note on Duchenne muscular dystrophy.

(20 marks)

3. Discuss briefly:

3A. Biochemical tests to evaluate bone turnover rates.

3B. Pyridoxine - functions and tests to evaluate pyridoxine status.

3C. Metabolic role of trace elements.

(10×3 = 30 marks)

4. Write short notes on:

4A. ELISA.

4B. Receptor mediated endocytosis.

4C. Antivitamins.

(10×3 = 30 marks)

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MANIPAL ACADEMY OF HIGHER EDUCATION

(Deemed University)

MD (BIOCHEMISTRY) DEGREE EXAMINATION – DECEMBER 2006

SUBJECT: PAPER IV: CLINICAL BIOCHEMISTRY

Thursday, December 07, 2006

Time: 3 Hrs. Max. Marks: 100

Answer ALL the questions.

1. Give an account of biochemical tumour markers and indicate the merits and demerits in clinical diagnosis and management.

(20 marks)

2. Discuss the congenital transport disturbances with suitable examples. Discuss the role of clinical laboratory in their diagnosis.

(20 marks)

3. Explain briefly how will you biochemically investigate the following:

3A. Low blood hemoglobin.

3B. Turbid plasma.

3C. Presence of reducing substance in the urine.

(10×3 = 30 marks)

4. Discuss briefly:

4A. Preanalytical variations.

4B. Biochemical assessment of malabsorption.

4C. Point of care testing.

(10×3 = 30 marks)