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HEALTH SCIENCES DEPARTMENT

MANIPAL UNIVERSITY

MD (BIOCHEMISTRY) DEGREE EXAMINATION – APRIL 2009

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

Wednesday, April 01, 2009

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

Answer ALL the questions.

1. Discuss the steps used in isolation of an enzyme located in the cytoplasm. How to assess homogeneity of purified enzyme?
(20+5 = 25 marks)
2. What is human genome project? Describe the medical applications of human genome sequence information.
(25 marks)
3. Describe principles and applications of:
 - 3A. Ion exchange chromatography
 - 3B. Fluorometry(13+12 = 25 marks)
4. Describe the structure of membranes. Discuss how membrane composition varies with functions of membranes. Add a note on active transport system.
(25 marks)



MANIPAL UNIVERSITY**MD (BIOCHEMISTRY) DEGREE EXAMINATION – APRIL 2009****SUBJECT: PAPER II: INTERMEDIARY METABOLISM**

Thursday, April 02, 2009

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

Answer ALL the questions.

1. A patient presents to the skin OPD with rashes on exposure to sunlight and photophobia. He has an unusually light colored skin and hair. Describe the metabolism of the involved amino acid with special reference to its specialized products.
(20 marks)
2. Describe the denovo fatty acid and triglyceride synthesis pathways. Discuss the formation of stearic and oleic acid from palmitic acid.
(20 marks)
3. Explain oxidative phosphorylation and indicate the importance of inhibitors / uncouplers.
(20 marks)
4. **Write short notes on:**
 - 4A. Galactose metabolism.
 - 4B. Transport of dietary triglycerides and the associated disorders.
 - 4C. Von Gierkes disease.
 - 4D. Phase-II Detoxification reactions.
(40 marks)



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MANIPAL UNIVERSITY

MD (BIOCHEMISTRY) DEGREE EXAMINATION – APRIL 2009

SUBJECT: PAPER III: ENZYMES, NUTRITION AND SPECIALIZED TISSUES

Friday, April 03, 2009

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ Answer ALL the questions.

1. Write a descriptive account of mechanism of enzyme catalysis with suitable examples.
(25 marks)

2. Describe chemistry, source, metabolic functions and deficiency manifestations of folic acid. Why folic acid and vitamin B₁₂ deficiency symptoms overlap?
(25 marks)

3. Discuss the following:
 - 3A. Mechanism of steroid hormone action.
 - 3B. Dietary fibres.(10×2 = 20 marks)

4. Write short notes on:
 - 4A. Role of renal system in acid base balance.
 - 4B. T-lymphocytes.
 - 4C. Osteoblasts.(10×3 = 30 marks)



MANIPAL UNIVERSITY

MD (BIOCHEMISTRY) DEGREE EXAMINATION – APRIL 2009

SUBJECT: PAPER IV: CLINICAL BIOCHEMISTRY

Saturday, April 04, 2009

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

☞ Answer ALL the questions.

1. A patient presents to the OPD with yellowish discoloration of skin and sclera. Discuss how would you biochemically investigate this patient.

(25 marks)

2. Describe the principles, significance and methodology of quality control in clinical biochemistry investigations.

(25 marks)

3. Discuss the role of biochemical parameters in the diagnosis and monitoring of type I diabetes mellitus.

(25 marks)

4. Write short notes on:

4A. LDL - cholesterol and its estimation.

4B. Acid phosphatase and its isoenzymes.

4C. Creatinine clearance.

4D. Therapeutic drug monitoring.

(25 marks)

