

Reg. No.

HEALTH SCIENCES LIBRARY

MANIPAL UNIVERSITY

M.Sc. MEDICAL (FINAL) BIOCHEMISTRY DEGREE EXAMINATION – FEBRUARY 2009

PAPER I: CHEMICAL NATURE AND METHODS OF STUDY OF BIOCHEMICAL COMPOUNDS AND ENZYMES

Monday, February 02, 2009

Time available: 14:00 – 17:00 Hrs.

Maximum Marks: 100

- ✍ Answer any FIVE questions.
- ✍ All questions carry equal marks.
- ✍ Write answers that are brief, clear, relevant and legible.
- ✍ Illustrate your answers with neatly drawn and correctly labeled diagrams wherever appropriate.

1. What are the characteristic properties of an enzyme? Write in detail their classification illustrating with suitable examples.
2. Discuss in detail the functional role of subcellular organelles and membranes.
3. What are isotopes? Outline the principles of operation of a scintillation counter. Discuss briefly the use of isotopes in Biochemistry and Medicine.
4. Explain the salient features of electrophoresis. Mention its uses in clinical chemistry.
5. Describe:
 - 5A. Gene therapy
 - 5B. Affinity chromatography
6. Write briefly on:
 - 6A. Structure of immunoglobulins.
 - 6B. Allosteric inhibition.
 - 6C. Southern blot.
 - 6D. HPLC.



MANIPAL UNIVERSITY**M.Sc. MEDICAL (FINAL) BIOCHEMISTRY DEGREE EXAMINATION – FEBRUARY 2009****PAPER II: INTERMEDIARY METABOLISM**

Tuesday, February 03, 2009

Time available: 14:00 – 17:00 Hrs.

Maximum Marks: 100

- ✍ **Answer any FIVE questions.**
 - ✍ **All questions carry equal marks.**
 - ✍ **Write answers that are brief, clear, relevant and legible.**
 - ✍ **Illustrate your answers with neatly drawn and correctly labeled diagrams wherever appropriate.**
1. Describe the metabolism of sulphur containing amino acids.
 2. Describe the key differences between liver, muscle and brain that account for different utilization of metabolic fuels.
 - 3A. Give an account of role of tRNA.
 - 3B. What are PEST sequences? Explain the process of Intracellular protein degradation.
 4. What are postaglandins? Describe their synthesis and functions.
 5. Describe the metabolism of chylomicrons and VLDL.
 - 6A. What is anaplerosis? Explain.
 - 6B. Give three examples for post translational modifications.
 - 6C. Explain enhancers.
 - 6D. Write a note on splicing.

MANIPAL UNIVERSITY**M.Sc. MEDICAL (FINAL) BIOCHEMISTRY DEGREE EXAMINATION – AUGUST 2009****PAPER II: INTERMEDIARY METABOLISM**

Tuesday, August 04, 2009

Time available: 14:00 – 17:00 Hrs.

Maximum Marks: 100

- ✍ Answer any FIVE questions.
- ✍ All questions carry equal marks.
- ✍ Write answers that are brief, clear, relevant and legible.
- ✍ Illustrate your answers with neatly drawn and correctly labelled diagrams wherever appropriate.

1. Write the pathway by which purine nucleotides are synthesized de novo. How is it regulated?
2. Describe various experimental approaches to study metabolisms.
3. Glucose labelled with ^{14}C at $\text{C} - 6$ is added to a liver homogenate. What is the fate of radioactive label? Explain.
4. Discuss the amphibolic role of TCA cycle in metabolism. How is the cycle regulated?
5. Write short note on
 - 5A. Prostaglandins
 - 5B. Activation of amino acid during translation
- 6A. Pellagra like symptoms occur in Hartnup's disease. Explain.
- 6B. A defect in ATP-citrate lyase might be expected to have severe consequences of fatty acid biosynthesis. Explain.
- 6C. Point mutations may have beneficial effects. Explain.



MANIPAL UNIVERSITY**M.Sc. MEDICAL (FINAL) BIOCHEMISTRY DEGREE EXAMINATION – AUGUST 2009****PAPER I: CHEMICAL NATURE AND METHODS OF STUDY OF BIOCHEMICAL COMPOUNDS AND ENZYMES**

Monday, August 03, 2009

Time available: 14:00 – 17:00 Hrs.

Maximum Marks: 100

- ✍ Answer any FIVE questions.
- ✍ All questions carry equal marks.
- ✍ Write answers that are brief, clear, relevant and legible.
- ✍ Illustrate your answers with neatly drawn and correctly labeled diagrams wherever appropriate.

1. Describe the structure and function of heteropolysaccharides.
2. What are 'stable isotopes' and 'radioisotopes'? Describe their applications in biochemistry.
3. Write short notes on:
 - 3A. Chemiosmotic theory
 - 3B. Prions
 - 3C. Western Blot Technique
 - 3D. Write the structure of:
 - i) PRPP
 - ii) Arginine
 - iii) Sucrose
 - iv) Cholesterol
 - v) Epinephrine
4. Describe the purification of an enzyme located in the inner mitochondrial membrane. How do you assess purity of the sample obtained?
 - 5A. Describe the structure of DNA.
 - 5B. Discuss the active site of enzymes.
6. Write briefly on:
 - 6A. Gas liquid chromatography.
 - 6B. Immunoglobulins.