

# MANIPAL UNIVERSITY

FIRST MBBS DEGREE EXAMINATION – MAY/JUNE 2007

SUBJECT: BIOCHEMISTRY– PAPER I (ESSAY)

Monday, June 04, 2007

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 glycogenolysis. Add a note on its regulation. Name two disorders of glycogen metabolism indicating the enzymatic defect in each. (3+2+1 = 6 marks)
2. Make a list of the different classes of enzymes giving suitable examples for each. (3 marks)
3. Give an outline of the ETC indicating the ATP generating sites and mention one Inhibitor for each of them. (3 marks)
4. List functions of the HMP shunt. (2 marks)
5. Mention four enzymes whose plasma levels are altered in disease, indicating one condition for each. (2 marks)
6. Write briefly on:
  - 6A. Mutation
  - 6B. 2, 3 BPG
 (2+2 = 4 marks)
7. Give the pathway for  $\beta$ - oxidation of fatty acids. Add a note on the energetics. (5+1 = 6 marks)
8. Write briefly on the process of transamination and its functions. (2+1 = 3 marks)
9. What are catecholamines? How are they formed? (1+2 = 3 marks)
10. Name two products of biochemical importance formed from glycine and outline the pathway for the formation. (2 marks)
11. Define lipotropic factors with two examples. (1+1 = 2 marks)
12. Answer the following:
  - 12A. Name the inborn errors of the urea cycle mentioning the enzymatic defects.
  - 12B. What are the normal levels of plasma cholesterol? Mention two diseases in which its levels are increased. (2+2 = 4 marks)



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**FIRST MBBS DEGREE EXAMINATION – MAY/JUNE 2007**  
**SUBJECT: BIOCHEMISTRY– PAPER II (ESSAY)**

Tuesday, June 05, 2007

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. Define transcription. Describe the stages of transcription. Write a note on post transcriptional modifications.  
(1+3+2 = 6 marks)
  
2. Discuss the mechanism of action of oncogenes with suitable examples.  
(2 marks)
  
3. Write briefly on:
  - 3A. Synthesis of monoclonal antibodies
  - 3B. ELISA
  - 3C. Cell cycle(2×3 = 6 marks)
  
4. Describe active transport with the help of examples.  
(2 marks)
  
5. Give reasons for the following:
  - 5A. Patients with serum uric acid levels > 8 mg% have arthritis.
  - 5B. 5-fluoro uracil is used as an anticancer agent.
  - 5C. Double stranded DNA with a higher G-C content has a higher melting temperature.
  - 5D. The mutation of UAA codon to UGA codon has no effect on the protein synthesized.(1×4 = 4 marks)
  
6. Describe the formation and fate of bilirubin. Write the tests you would perform in a patient with jaundice due to gallstones.  
(4+2 = 6 marks)
  
7. Define radioisotopes. Write the applications of radioisotopes in medicine with examples.  
(2 marks)



8. Write the reactions catalysed by following enzymes.

- 8A. HMG CoA reductase
- 8B. Glutamate decarboxylase
- 8C. Succinate thiokinase
- 8D. Aldolase

( $\frac{1}{2} \times 4 = 2$  marks)

9. Write the composition of:

- 9A. Cerebroside
- 9B. Glutathione
- 9C. Hyaluronic acid
- 9D. Lecithin

( $\frac{1}{2} \times 4 = 2$  marks)

10. Write brief notes on:

- 10A. Allosteric enzymes
- 10B. Bile salts
- 10C. Cyclic AMP
- 10D. Cori's cycle

( $1\frac{1}{2} \times 4 = 6$  marks)

11. Write the metabolic importance of pyruvate in the body.

(2 marks)

12. Explain the role of lipoproteins in the transport of lipids.

(2 marks)