

# MANIPAL UNIVERSITY

## FIRST MBBS DEGREE EXAMINATION – AUGUST 2008

### SUBJECT: BIOCHEMISTRY – PAPER I (ESSAY)

Monday, August 18, 2008

Time: 10:20 – 13:00 Hours.

Maximum Marks: 40

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1. Describe hexose monophosphate pathway. Write significances of this pathway in different tissues.  
(3+1 = 4 marks)
2. Give normal range of blood glucose during fasting and postprandial state. Explain regulation of blood glucose.  
(1+3 = 4 marks)
3. Write digestion of dietary protein and absorption of amino acids.  
(2+1 = 3 marks)
- 4A. How phenylalanine is converted to tyrosine?
- 4B. How catecholamines and melanin are formed from tyrosine?
- 4C. Write the reactions of tyrosine catabolism.  
(1+2+2 = 5 marks)
5. Describe ketogenesis and ketolysis. Add a note on ketoacidosis.  
(3 marks)
6. Explain structure of proteins.  
(3 marks)
7. Define coenzymes. Give two examples with complete reactions in which they participate.  
(3 marks)
8. Give diagnostic importance of estimation of following serum enzymes:
  - 8A. Amylase.
  - 8B. Creatine kinase.
  - 8C. Alanine transaminase.
  - 8D. Acid phosphatase.  
( $\frac{1}{2} \times 4 = 2$  marks)

9. Write short notes on:
- 9A. Chylomicrons.
  - 9B. Respiratory chain inhibitors.
  - 9C. Classification of monosaccharides.
  - 9D. Galactosemia.

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

10. Give biochemical reasons for the following:
- 10A. Plasma albumin accounts for 80% of colloidal osmotic pressure of plasma.
  - 10B. Bone marrow cells from a patient with Gaucher's disease are loaded with glycolipids.
  - 10C. In von Gierke's disease only 10% of glucose residues of glycogen appear in blood.
  - 10D. Low dose of aspirin administration lowers the risk of stroke and heart attack.
  - 10E. Muscle glycogenolysis does not contribute to blood glucose.

( $1 \times 5 = 5$  marks)

11. Write the salient features of allosteric regulation of enzymes with one example.

(2 marks)

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## FIRST MBBS DEGREE EXAMINATION – AUGUST 2008

### SUBJECT: BIOCHEMISTRY– PAPER II (ESSAY)

Tuesday, August 19, 2008

Time: 10:20–13:00 Hours

Maximum Marks: 40

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1. Describe the process of transcription. Name any two post-transcriptional modification indicating their biological relevance?  

(3+1 = 4 marks)
  
2. Write the metabolic functions of:
  - 2A. Thiamine
  - 2B. Pyridoxine
  - 2C. Ascorbic acid
  - 2D. Biotin

(1½×4 = 6 marks)
  
3. Explain the principle and application of Van Den Bergh test.  

(2 marks)
  
4. How uric acid is formed from corresponding nucleosides? Explain the causes and manifestation of hyper uricemia?  

(2+2 = 4 marks)
  
5. How the following compounds undergo biotransformation/detoxification?
  - 5A. Methanol
  - 5B. Atropine
  - 5C. Isoniazid
  - 5D. Picric acid

(½×4 = 2 marks)
  
6. Write biochemical explanation for the following statements:
  - 6A. Administration of barbiturates is not advisable for the patients suffering from acute intermittent porphyria.
  - 6B. Lactic acidosis leads to increase in plasma anion gap.

6C. 5-Fluoro uracil is used as an anticancer drug.

6D. Edema is observed in Kwashiorkor.

(1×4 = 4 marks)

7. Briefly describe the following:

7A. Transport mechanisms across biomembranes.

7B. Diagnostic and therapeutic uses of radio isotopes.

7C. Role of retinal in vision.

7D. Mechanism of action of drug used in treatment of AIDS.

(1½×4 = 6 marks)

8. Write brief notes on:

8A. Hybridoma technology.

8B. Metabolic acidosis.

8C. Tumour markers.

8D. Southern blotting.

(2×4 = 8 marks)

9. Describe briefly the following.

9A. Operon model of gene regulation.

9B. Recombinant DNA technology.

(2×2 = 4 marks)

