

MANIPAL UNIVERSITY
FIRST MBBS DEGREE EXAMINATION – AUGUST 2010

SUBJECT: BIOCHEMISTRY– PAPER I (ESSAY)

Monday, August 16, 2010

Time: 10:20 – 13:00 Hrs.

Maximum Marks: 40

1. Discuss the de novo synthesis of fatty acids. Describe how fatty acids synthesized in the liver are transported to the other tissues of the body.
(3+1 = 4 marks)
2. Write the reaction by which lactate is converted to glucose. Name any two clinical conditions associated with lactic acidosis giving the biochemical basis for the same.
(3+1 = 4 marks)
3. Discuss the metabolism of sulfur containing amino acids.
(3 marks)
4. Classify enzymes. Give one example each for any three classes with complete reactions.
(2 marks)
5. Explain the biochemical changes taking place during starvation.
(3 marks)
6. Describe briefly the formation and significance of following compounds:
6A. HMG CoA
6B. Transamination
6C. Dopamine
(2×3 = 6 marks)
7. Briefly describe the salient features of the following processes:
7A. Transfer of electrons in the respiratory chain
7B. Reverse cholesterol transport
7C. Electrophoresis of serum proteins
7D. Formation and utilization of bile salts
(2×4 = 8 marks)
8. Give biochemical basis for the following:
8A. Humans cannot synthesize ascorbic acid from glucuronic acid.
8B. Positive Benedict's test in urine is NOT necessarily an indication of diabetes mellitus.
8C. Glucagon cannot prevent hypoglycemia in Von Gierke's disease.
8D. Lovastatin is used in the treatment of hypercholesterolemia.
(1×4 = 4 marks)
9. Write brief note on:
9A. Active site of an enzyme.
9B. Digestion and absorption of dietary proteins in GIT.
9C. Inborn errors of aromatic amino acids metabolism.
(2×3 = 6 marks)



MANIPAL UNIVERSITY**FIRST MBBS DEGREE EXAMINATION – AUGUST 2010****SUBJECT: BIOCHEMISTRY– PAPER II (ESSAY)**

Tuesday, August 17, 2010

Time: 10:20 – 13:00 Hrs.

Maximum Marks: 40

1. Describe the process of translation with help of neat labeled diagram.
(4 marks)
2. Describe briefly the salient structural and functional features of DNA.
(3 marks)
3. Discuss briefly how would you proceed biochemically to investigate a patient with jaundice.
(3 marks)
4. Write brief notes on:
 - 4A. Fluid mosaic model of cell membrane
 - 4B. Metabolic acidosis
 - 4C. Medical applications of radioisotopes
 - 4D. Protein energy malnutrition(1½×4 = 6 marks)
5. Describe briefly the principle and applications of the following:
 - 5A. Polymerase chain reaction
 - 5B. Southern blotting
 - 5C. Hybridoma technology(2×3 = 6 marks)
6. Mention the metabolic functions and deficiency features of the following:
 - 6A. Pyridoxal phosphate
 - 6B. Cholecalciferol
 - 6C. Cobalamin
 - 6D. Iron(1½×4 = 6 marks)

7. Give biochemical basis for the following

7A. Overactivity of PRPP synthetase causes gout.

7B. Chronic renal failure patients have increased anion gap.

7C. Photosensitivity is not observed in acute intermittent porphyria.

7D. Mutation of codon need not result in alteration of amino acid sequence in the protein.

(1×4 = 4 marks)

8. Discuss the regulation of gene expression with the example of lac operon.

(3 marks)

9. Discuss the significance of the following:

9A. Restriction endonucleases.

9B. Tumor markers.

(1½×2 = 3 marks)

10. Explain the role of cytochrome P-450 in detoxification.

(2 marks)

