

Question Paper

Exam Date & Time: 02-Mar-2019 (02:00 PM - 04:30 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

MELAKA MANIPAL MEDICAL COLLEGE (MANIPAL CAMPUS)

MBBS PHASE - I STAGE - I DEGREE EXAMINATION - MARCH 2019

Saturday, March 02, 2019 Biochemistry [M1BIO]

BIOCHEMISTRY - PART - II (ESSAY)

Section Duration: 120 mins

Max. Marks: 60

Answer all the questions.

Draw diagrams wherever appropriate

1. Justify with biochemical reasons the cause for anemia, fatty liver and edema in kwashiorkor. (4 marks)
2. Give biochemical reasons for advantages of consuming a Mediterranean diet in reducing the risk for cardiovascular disease. (3 marks)
3. A young athlete was brought to the hospital with complaints of tiredness and frequent muscular pain and cramps following prolonged exercise. Muscle biopsy revealed large lipid vacuoles. After diagnosis, the patient was prescribed L-carnitine supplements.
 - 3A. Name the pathway affected.
 - 3B. Explain the role of this supplement in the above pathway.
 - 3C. Write in detail the steps of the affected pathway.(0.5+2.5+4 = 7 marks)
4. Describe the effect of substrate concentration on an enzyme catalyzed reaction with the help of a graph. Define K_m and mention its significance with an example. (5 marks)
5. Write in detail, the reactions of heme synthesis pathway mentioning the site and subcellular site. (8 marks)
6. Write the reactions catalysed by the key enzymes of gluconeogenesis. (4 marks)
7. Diagrammatically represent the synthesis of thyroid hormones. Name TWO inhibitors of thyroid hormone synthesis indicating their site of action. (6 marks)
8. Describe the structure of collagen with a diagram. (4 marks)
9. Describe the metabolism of creatine. (4 marks)
10. Define anion gap. Give its normal value and the formula for its calculation. Add a note on its diagnostic utility. (4 marks)

11. A new born infant manifested with poor ability to feed, vomiting, drowsiness and seizures. Biochemical investigations revealed a high blood ammonia and glutamine levels. DNA analysis confirmed a genetic disorder affecting a biochemical pathway. The infant was put on sodium benzoate therapy.

11A. Name the defective pathway.

11B. Write the biochemical basis of the findings given in the case. Add a note on the basis of treatment given.

(0.5 + 4.5 = 5 marks)

12. Describe the steps of polymerase chain.

(3 marks)

13. Describe initiation of replication in prokaryotes with diagrams.

(3 marks)