

Question Paper

Exam Date & Time: 31-Aug-2019 (10:00 AM - 12:30 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

MELAKA MANIPAL MEDICAL COLLEGE (MANIPAL CAMPUS)

MBBS PHASE - I STAGE - I DEGREE EXAMINATION - AUGUST/SEPTEMBER 2019

Saturday, August 31, 2019

Biochemistry [M1BIO]

BIOCHEMISTRY - PART - II (ESSAY)

Section Duration: 120 mins

Max. marks : 60

Answer all the questions

Draw diagrams wherever appropriate

1. Explain the biosynthesis of mature collagen with the help of a diagram. (7 marks)
2. Diagrammatically represent the generation of bicarbonate by the distal tubular cells with the help of phosphate buffer. (3 marks)
3. Give the biochemical basis for various clinical and biochemical findings in classic galactosemia (4 marks)
4. Justify why adenosine deaminase deficiency causes severe combined immunodeficiency. (3 marks)
5. Explain the mechanism by which tRNAs recognize more than one codon for a specific amino acid. (3 marks)
6. Explain the regulation of lipolysis in adipose tissue. (3 marks)
7. Illustrate the steps in the formation of an atherosclerotic plaque & thrombus with emphasis on the role of LDL. (5 marks)
8. Calculate the energy produced from food containing 500g of carbohydrates, 60g of proteins, 70g of fats, 30g of fibres & 2g of sodium chloride. (3 marks)

9. Classify bile acids giving one example for each class. Illustrate the role of bile salts in emulsification of lipids. (4 marks)
10. Describe the effect of temperature and pH on the velocity of an enzyme catalyzed reaction with the help of graphs and suitable examples. (5 marks)
11. Explain the chemiosmotic hypothesis of oxidative phosphorylation with the help of a diagram. Name ONE uncoupler of oxidative phosphorylation. (4 marks)
12. Explain the folate trap hypothesis. (2 marks)
13. Vishwas, a chronic alcoholic was brought to the hospital in an unconscious state. Doctor on duty noticed alcohol smell in his breath and found his blood glucose level to be 37 mg/dl. Ultrasound examination revealed that he had fatty liver.
13A. Comment on the blood glucose level of Vishwas. Give the biochemical basis for the same.
13B. Explain the biochemical basis for the development of fatty liver. (3+3 = 6 marks)
14. Sixty-three-year-old Raju presented to the emergency in unconscious state with Kussmaul breathing. Doctor learnt that Raju was a known diabetic who had stopped all his medications recently. His blood glucose level was 857 mg/dL & blood pH was 7.2
14A. Explain the biochemical basis for his blood findings.
14B. Explain the synthesis of the compound that is responsible for Kussmaul breathing. (4+4 = 8 marks)
