

MANIPAL ACADEMY OF HIGHER EDUCATION
MELAKA MANIPAL MEDICAL COLLEGE (MANIPAL CAMPUS)
MBBS PHASE - I STAGE - I DEGREE EXAMINATION - APRIL 2021
SUBJECT: BIOCHEMISTRY - PART - II (ESSAY)

Tuesday, April 20, 2021

Time : 10.30 am to 12.30 pm.

Max. marks : 60

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- ✓ **Answer all the questions**
 - ✓ **Draw diagrams wherever appropriate**
- 1. Describe the different types of secondary structures seen in proteins with diagrams.**
(5 marks)

 - 2. Describe in detail the steps of the energy-yielding pathway in mature erythrocytes.**
(8 marks)

 - 3. A 45-year-old man experienced shortness of breath & severe pain in his chest radiating to his neck and jaw on the left side. He was rushed to the emergency room where an ECG recording showed an abnormal pattern. An angiogram revealed a block in the right coronary artery and serum lipid profile showed elevated LDL-cholesterol.**

What is your diagnosis? Name ONE diagnostic serum marker that would increase in this condition. Describe with diagrams the process, which led to the block in his right coronary artery.

(5 marks)

4. What are endo and exopeptidases? Give ONE example for each. Describe the activation of pancreatic zymogens in detail.

(5 marks)

5. Mention the defect and causes for lactose intolerance. Give the biochemical basis of the various findings in it.

(5 marks)

6. What is gluconeogenesis? List the key enzymes of gluconeogenesis and add note on Cori cycle with its significance.

(5 marks)

7. A 13-year-old girl was brought to the accident and emergency unit in an unconscious state. She was breathing rapidly and had a fruity odor in her breath. A quick test of blood glucose showed a value of 370 mg/dL. Her father informed the treating doctor that she had been eating more than what she normally did and had been drinking a lot of water.

7A. What is your diagnosis?

7B. Give the biochemical basis for her symptoms.

(1+6 = 7 marks)

8. Name the enzyme defect in von Gierke's disease and explain the biochemical basis for various biochemical and clinical findings.

(5 marks)

- 9. Define anion gap, write the formula for its calculation and give its normal value. Classify metabolic acidosis based on anion gap mentioning ONE cause for each class.**
(5 marks)
- 10. Describe the steps involved in the formation of urea.**
(5 marks)
- 11. Explain the steps of PCR with diagrams. Mention TWO of its applications.**
(5 marks)

