

UNIVERSITY OF JAFFNA, SRI LANKA
FIRST EXAMINATION FOR MEDICAL DEGREES- MAY-2012
BIOCHEMISTRY PAPER II

Date: 02.05.2012

Time: 3Hours

Answer all TEN questions

Answer Part A and Part B in separate answer books

PART A

1. 1.1 Explain the advantage of having pentose phosphate pathway in red blood cells. **(50 Marks)**
- 1.2 Explain how glucose metabolism in red blood cells is altered under hypoxic condition. **(30 Marks)**
- 1.3 Diagrammatically show how glucose is converted to fructose in the seminal vesicles. **(20 Marks)**

2. 2.1 Schematically show the steps involved in the formation of chylomicron. **(40 Marks)**
- 2.2 Explain how the dietary cholesterol enters the extrahepatic tissues. **(60 Marks)**

3. 3.1 Explain how serum calcium level is maintained in an adult. **(50 Marks)**
- 3.2 Diagrammatically show and explain how non-heme iron is absorbed and transported to blood and how it enters the reticuloendothelial system. **(50 Marks)**

4. 4.1 Give examples for qualitative haemoglobinopathies and explain the biochemical basis of the consequences of these abnormalities. **(60 Marks)**

- 4.2 Explain how the structure of mitochondria is suited for oxidative phosphorylation. (40 Marks)
5. Write short notes on
- 5.1 isoenzymes of lactate dehydrogenase (30 Marks)
- 5.2 leucotrienes (20 Marks)
- 5.3 homocystinuria (50 Marks)
6. 6.1 What are the consequences of protein deficiency in an adult. (50 Marks)
- 6.2 Describe the dietary advice that has to be given to a sportsman after a football match. (50 Marks)

PART B

7. 7.1 Explain how folic acid deficiency causes megaloblastic anemia. (60 Marks)
- 7.2 Explain the biochemical functions of vitamin K. (40 Marks)
8. 8.1 Diagrammatically show how insulin controls protein synthesis. (40 Marks)
- 8.1 Explain the biochemical basis of the characteristic changes in serum protein electrophoretic pattern of a multiple myeloma patient. (60 Marks)
9. 9.1 Comment on the nutritional quality of a hen's egg (40 Marks)
- 9.2 Discuss the importance of dietary fibers. (60 Marks)
10. 10.1 Show how p53 acts as a tumor suppressor gene. (50 Marks)
- 10.2 Write short notes on acquired immune response. (50 Marks)