

UNIVERSITY OF JAFFNA, SRI LANKA
First Year First Semester Examination in
BScHons (Medical Laboratory Sciences) - 2020

AHSBB1146 – BASIC BIOCHEMISTRY

07.02.2022

Time: 2 hours

PAPER II

Answer All Six Questions.

Answer Each Question in Separate Answer Books.

1. 1.1 List the different buffer systems present in blood. (10 Marks)
- 1.2 1.2.1 List different phospholipids in human system. (10 Marks)
- 1.2.2 Give the biochemical functions of phospholipids. (20 Marks)
- 1.3 Explain how the structure of fibronectin is suited for its function. (30 Marks)
- 1.4 1.4.1 Give the principle of electrophoresis. (15 Marks)
- 1.4.2 Diagrammatically show how the electrophoretic pattern of the serum proteins of a nephrotic syndrome patient varies from that of a normal person. (15 Marks)

2. 2.1 Administration of the antimalarial drug primaquine, may lead to haemolytic anaemia. Explain. (30 Marks)
- 2.2 Give the tests which could be done in urine and serum to identify the type of jaundice that may occur in the above patients. (25 Marks)
- 2.3 Explain the self-regulation of ATP synthesis. (15 Marks)
- 2.4 Explain how the increase in plasma LDL level leads to atherosclerosis. (30 Marks)

3. 3.1 Explain the biochemical basis of Fluoride preventing dental caries. (20 Marks)
- 3.2 Diagrammatically show how thyroid hormone is synthesised in the thyroid follicular cells. (35 Marks)
- 3.3 A mother complained that her child was mentally retarded for the chronological age and was extremely irritable. The blood phenylalanine level was elevated and the urine contained phenyl pyruvate.
- 3.3.1 Suggest the probable defect in the child. (10 Marks)
- 3.3.2 Explain the causes for the above said condition. (35 Marks)
4. 4.1 Show diagrammatically how an increase in glycogenolysis can lead to a decrease in glycogenesis in liver. (35 Marks)
- 4.2 A diabetic patient taking enough calories and other nutrients was losing weight. Explain. (35 Marks)
- 4.3 Explain how ketosis occurs in untreated diabetes mellitus patients? (30 Marks)
5. 5.1 "Cell membrane is semipermeable" Explain. (20 Marks)
- 5.2 Draw the structure of an antibody (10 Marks)
- 5.3 Explain the causes and diseases of B₁₂ and folic acid deficiency. (45 Marks)
- 5.4 Explain the health benefits of dietary fiber. (25 Marks)
6. 6.1 Explain transcription and translation taking albumin synthesis as an example. (20 Marks)
- 6.2 Explain enzyme inhibition and clinical application by giving two examples. (20 Marks)
- 6.3 Explain the role of vitamin D in calcium homeostasis. (20 Marks)
- 6.4 Explain "Healthy plate" concept for a Sri Lankan and draw the meal plate. (40 Marks)