

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

*Allied Health Sciences*

MLSBM1163 – BIOCHEMISTRY FOR MEDICAL LABORATORY SCIENCES I

07.02.2022

Time: 2 Hours

**PAPER II**

**Answer All Six Questions.**

**Answer Each Question in Separate Answer Books.**

1. 1.1 Explain why haemoglobin buffer system is more efficient in maintaining the blood pH than the carbonic acid-bicarbonate buffer system. (30 Marks)
- 1.2 Liposomes are clinically used as carriers of drugs. Explain. (20 Marks)
- 1.3 Explain the chemiosmotic hypothesis of ATP synthesis. (30 Marks)
- 1.4 Explain the biochemical basis of Fluoride preventing dental caries. (20 Marks)
  
2. 2.1 Explain how the structure of fibronectin is suited for its function. (30 Marks)
- 2.2 2.2.1 Give the principle of electrophoresis. (15 Marks)
- 2.2.2 Diagrammatically show how the electrophoretic pattern of the serum proteins of a nephrotic syndrome patient varies from that of a normal person. (20 Marks)
- 2.3 Explain the phenomenon 'Salting out'. (15 Marks)
- 2.4 Explain why the people living in the mountainous area of Sri Lanka are more prone to have goitre. (20 Marks)

3. 3.1 Administration of the antimalarial drug primaquine, may lead to haemolytic anaemia. Explain. (30 Marks)
- 3.2 Give the tests which could be done in urine and serum to differentiate different types of jaundices. (40 Marks)
- 3.3 Diagrammatically show how thyroid hormone is synthesised in the thyroid follicular cells. (30 Marks)
4. 4.1 Give the structure and function of hyaluronic acid. (20 Marks)
- 4.2 List the enzymes & proteins and their functions in DNA replication. (20 Marks)
- 4.3 Explain the competitive inhibition of an enzyme with an example. (20 Marks)
- 4.4 Diagrammatically show how dietary fat is digested and absorbed? (20 Marks)
- 4.5 Explain the enterohepatic circulation. (20 Marks)
5. 5.1 Give the biochemical basis of how thiamine deficiency affects nervous system. (25 Marks)
- 5.2 List the thiamine deficiency diseases and the clinical features. (15 Marks)
- 5.3 Give the structure of cell membrane and the different types of lipids present in it. (20 Marks)
- 5.4 5.4.1 What is multiple myeloma? (05 Marks)
- 5.4.2 Compare the serum protein electrophoretic pattern of a normal person with that of a multiple myeloma patient. (15 Marks)
- 5.4.3 Explain autoimmune disease with an example. (20 Marks)
6. 6.1 Explain vitamin D metabolism and its role in calcium homeostasis (50 Marks)
- 6.2 Give the biochemical functions of vitamin B<sub>12</sub>. (30 Marks)
- 6.3 Explain how the functions of folic acid are interconnected with the biochemical functions of Vitamin B<sub>12</sub>. (20 Marks)