UNIVERSITY OF JAFFNA, SRI LANKA
FACULTY OF ALLIED HEALTH SCIENCES
FIRST YEAR FIRST SEMESTER EXAMINATION IN BScHons (MLS)-2023
MLSBM 1163-BIOCHEMISTRY FOR MLS I
PAPER II

Date: 16.12.2024 **Time: 2 Hours**

Answer All the Six Questions.
Answer Each Part in Separate Answer Books.

PART A

1 **1.1** List four sugar derivatives. **(10 Marks)**

1.2 Explain why cellulose is not digested in the human digestive system. **(10 Marks)**

1.3 Explain why the arachidonic acid (ARA) and docosahexaenoic acid (DHA) are called conditionally essential fatty acids. **(20 Marks)**

1.4 List the significance of arachidonic acid (ARA) and docosahexaenoic acid (DHA) in humans. **(10 Marks)**

1.5 Briefly describe the passive transport with examples. **(20 Marks)**

1.6 Explain the biochemical basis of classifying the blood group antigens. **(30 Marks)**

2 **2.1** Write short note on isoelectric point of a protein. **(15 Marks)**

2.2 Outline the steps involved in the eukaryotic protein synthesis. **(45 Marks)**

2.3 List the physical and chemical agents which denature proteins. **(20 Marks)**

2.4 **2.4.1** Explain the condition emphysema. **(05 Marks)**

2.4.2 Explain the role of alpha -1 antitrypsin in preventing emphysema. **(15 Marks)**

PART B

3 **3.1** List five examples for body buffers. **(10 Marks)**

3.2 Describe the advantages and disadvantages of the buffer system which is present in highest concentration in the body. **(10 Marks)**

3.3 List the enzymes and their functions in DNA replication. **(20 Marks)**

3.4 Write short notes on

3.4.1 Phagocytosis. **(10 Marks)**

3.4.2 Acquired immune response. **(30 Marks)**

3.5 **3.5.1** Define the Km value of an enzyme. **(05 Marks)**

3.5.2 List the factors that affect the rate of enzyme-catalysed reactions. **(15 Marks)**

4 4.1 A new-born baby was jaundiced and returned to normal in two weeks time.

4.1.1 Name the probable condition. (05 Marks)

4.1.2 List the biochemical causes that can lead the above condition. (25 Marks)

4.2 Explain why and how the oxygen dissociation curves of haemoglobin and myoglobin differ. (30 Marks)

4.3 With regard to haemolytic jaundice, list

4.3.1 three conditions leading to the above condition. (06 Marks)

4.3.2 the biochemical changes that may occur in

4.3.2.1 Serum (04 Marks)

4.3.2.2 Urine (04 Marks)

4.3.2.3 Faeces (04 Marks)

4.3.3 Give reasons for the changes in the above biochemical parameters in

4.3.3.1 Serum (18 Marks)

4.3.3.2 Faeces and Urine (14 Marks)

5 5.1 5.1.1 Define Uncouplers. (05 Marks)

5.1.2 Give three examples for uncouplers (06 Marks)

5.1.3 Diagrammatically show how the uncouplers function. (09 Marks)

5.2 5.2.1 Give three examples for thiamine dependent enzyme catalysed reactions naming the substrate, enzyme, product/s and coenzymes. (30 Marks)

5.2.2 List five dietary sources of thiamine. (10 Marks)

5.3 Diagrammatically show and explain the biochemical function of Vitamin K. (40 Marks)

6 6.1 6.1.1 List the biochemical functions of thyroid hormone in different organs. (30 Marks)

6.2 List five dietary sources of iron. (10 Marks)

6.3 List the biochemical functions of

6.3.1 Zinc (10 Marks)

6.3.2 Copper (10 Marks)

6.4 In the gastro intestinal tract of an adult describe how the carbohydrates in the diet are

6.4.1 digested (25 Marks)

6.4.2 absorbed (15 Marks)