

UNIVERSITY OF JAFFNA, SRI LANKA
First Year Second Semester Examination in
BScHons (Medical Laboratory Sciences) - 2019

MLSBM1262 – BIOCHEMISTRY FOR MEDICAL LABORATORY SCIENCES II

PAPER II

24.01.2022

Time: 2 hours

Answer All Questions.

Answer each question in Separate Answer Books.

1. 1.1 Show diagrammatically how an increase in glycogenolysis can lead to a decrease in glycogenesis in liver. **(60 Marks)**
- 1.2 List the hormones, which regulate the blood glucose level and explain how the above said hormones are inter related to each other in regulating the blood glucose level. **(40 Marks)**

2. 2.1 Give the expected blood glucose range of a
 - 2.1.1 normal person after 12h of fasting. **(10 Marks)**
 - 2.1.2 normal person after 2h of a meal. **(10 Marks)**
 - 2.1.3 prediabetic person after 12h of fasting. **(10 Marks)**
- 2.2 A diabetic patient taking enough calories and other nutrients was losing weight. Explain. **(40 Marks)**
- 2.3 2.3.1 What is gestational Diabetes. **(10 Marks)**
- 2.3.2 Give the causes of gestational diabetes. **(20 Marks)**

3. 3.1 Explain the causes of developing ketosis in an untreated diabetes mellitus patient. (50 Marks)
- 3.2 Diagrammatically show the metabolism of VLDL. (50 Marks)
4. 4.1 4.1.1 List the ketone bodies? (10 Marks)
- 4.1.2 Outline the pathways of formation of ketone bodies from fatty acids. (40 Marks)
- 4.2 Explain how the elevated serum cholesterol level leads to atherosclerosis. (30 Marks)
- 4.3 Explain how the administration of statin decreases blood cholesterol level. (20 Marks)
5. 5.1 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.
- 5.1.1 Suggest the probable defect in the child. (10 Marks)
- 5.1.2 Explain the probable causes for the above said condition. (35 Marks)
- 5.1.3 How would the phenyl pyruvic acid in urine be detected? (15 Marks)
- 5.2 A 6-year-old girl was affected with homocystinuria. Administration of vitamin B₆ decreased the excretion of homocystine in urine. Give the reactions leading to the formation of homocystine and explain the rationale of treating this patient with vitamin B₆. (40 Marks)
6. 6.1 Explain the purine synthetic pathways and their control. (40 Marks)
- 6.2 Explain the pathways of “flow of genetic information”. (60 Marks)