



UNIVERSITY OF JAFFNA, SRI LANKA

FIRST YEAR SECOND SEMESTER EXAMINATION IN BScHonsMLS-2021

MLSBM1262 – BIOCHEMISTRY FOR MEDICAL LABORATORY SCIENCES II

(15TH BATCH)

PAPER II

22.06.2023

Duration: 2 hours

Answer All Six Questions.

Answer each question in Separate Answer Books.

Marks Allotted to Each Part is given in Brackets

1. 1.1 List the pathways which are taking place in red blood cells related to glucose metabolism. (10 Marks)
 - 1.2 Among the pathways listed in Section 1.1, name the pathways, which produces
 - 1.2.1 ATP (05 Marks)
 - 1.2.2 NADPH (05 Marks)
 - 1.3 Explain with a diagram how the pathway mentioned in Question 1.2.1 produces ATP. (50 Marks)
 - 1.4 Diagrammatically show how the pathway mentioned in Question 1.2.2 produces NADPH. (30 Marks)
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2. 2.1 Show diagrammatically how insulin hormone is secreted by the pancreas when the blood glucose level is elevated. (40 Marks)
 - 2.2 Explain how a person can be prepared to carry out Oral Glucose Tolerance Test (OGTT). (40 Marks)
 - 2.3 Give the principle of the specific method used to estimate blood glucose level. (20 Marks)

3. 3.1 Give reasons for the diabetics to have elevated levels of VLDL. (35Marks)
- 3.2 Explain how cholesterol synthesis is controlled in a nucleated cell. (30 Marks)
- 3.3 Explain with a diagram, how the gluconeogenesis and glycolysis are reciprocally controlled. (35 Marks)
4. 4.1 Give two main pathways, which leads to ketone body formation in hepatocytes. (35 Marks)
- 4.2 Give two conditions in which ketone body formation is elevated. (10 Marks)
- 4.3 Explain how the conditions mentioned in **Question 4.2** could lead to elevated serum ketone body formation. (30 Marks)
- 4.4 4.4.1 Name two tests that could be carried out to detect ketone bodies in urine. (10 Marks)
- 4.4.2 Give the experimental steps to detect ketone bodies by one of the method named in **Question 4.4.1**. (15 Marks)
5. 5.1 5.1.1 Diagrammatically show the structure of tRNA and explain how its structure suits for its function. (25 Marks)
- 5.2 Write short notes on:
- 5.2.1 Lesch Nyhan Syndrome. (25 Marks)
- 5.2.2 Gout (25 Marks)
- 5.2.3 Posttranslational modifications of proteins. (25 Marks)
6. 6.1 Give the biochemical basis of the following.
- 6.1.1 Phenylketonuria (35 Marks)
- 6.1.2 Homocystinuria Type I (35 Marks)
- 6.2 Diagrammatically show how the amino group in alanine channelled to urea formation. (30 Marks)