



FACULTY OF ALLIED HEALTH SCIENCES, UNIVERSITY OF RUHUNA

Department of Medical Laboratory Science

Year End Examination - Year 1 (9th Batch) - JUNE 2018

Cell Biology and Biochemistry

26th June 2018

Two hours

Answer any **four** questions.

9.30 a.m. -11.30 a.m.

Marks allocated to each question are given within parenthesis.

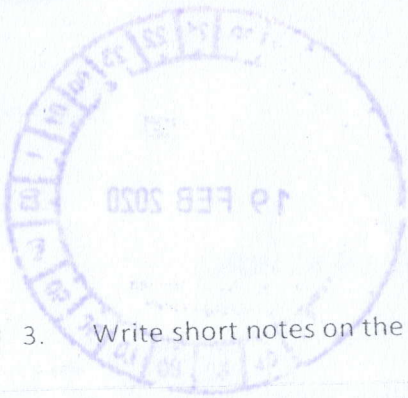


1. Explain the biochemical basis for the following.
 - 1.1 Occurrence of hypoglycemia in acute alcohol toxicity. (25 marks)
 - 1.2 Fluoride ions and an anticoagulant are added to blood samples awaiting glucose analysis. (25 marks)
 - 1.3 Long term intake of food and beverages rich in fructose could cause obesity. (25 marks)
 - 1.4 Adequate amount of zinc should be provided for post-surgical patients. (25 marks)

2.
 - 2.1
 - 2.1.1 Briefly explain the significance of calcium in the human body. (15 marks)
 - 2.1.2 State three hormones involved in the regulation of serum calcium level. (15 marks)
 - 2.1.3 Explain the role of one of the hormones you mentioned in 2.1.2 in calcium homeostasis. (30 marks)
 - 2.2 Fluoride is an important component for development and protection of teeth; however, its excessive intake is harmful. Explain. (40 marks)

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3. Write short notes on the following.

- 3.1 Electron transport chain. (25 marks)
- 3.2 Isolation of sub-cellular organelles of the cell. (25 marks)
- 3.3 Urea cycle. (25 marks)
- 3.4 Pentose Phosphate Pathway. (25 marks)

4. 4.1 Explain the significance of serum enzymes in clinical diagnosis. (50 marks)

4.2 4.2.1 State two techniques that can be used to estimate the distribution of lipoproteins in a plasma sample. (10 marks)

4.2.2 What is "bad cholesterol"? Briefly explain the answer giving reasons. (20 marks)

4.2.3 State the principle behind administration of statin drugs in hypercholesterolaemia. (20 marks)

5. 5.1 Explain the following.

5.1.1 Abnormalities in the purine metabolism could lead to severe combined immune deficiency. (25 marks)

5.1.2 Allopurinol is used in the treatment of gout. (25 marks)

5.2 5.2.1 Classify vitamins based on their solubility in water. (10 marks)

5.2.2 Briefly explain the role of vitamin A and vitamin C in the prevention of chronic diseases. (20 marks)

5.2.3 Describe the effect of vitamin D (10 marks)

(i) on intestine.

(ii) on bones. (10 marks)