FACULTY OF ALLIED HEALTH SCIENCES, UNIVERSITY OF RUHUNA
Department of Medical Laboratory Science
Second End Semester Examination – July 2023 – 2020/2021 Batch
MLS 1263 Metabolism and Regulatory Mechanisms - SEQ

Date: 12th July 2023 Time: 2.30 p.m. - 4.00 p.m. Duration: 1 hour and 30 minutes

Answer all questions

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01.

1.1 Briefly explain the biochemical significance of the following minerals in the body.

1.1.1 Iron (10 marks)

1.1.2 Iodine (10 marks)

1.1.3 Calcium (10 marks)

1.2 State **four** rich dietary sources for each of the minerals mentioned in 1.1 above. (12 marks)

1.3 State **two** causes for each of the following conditions. (16 marks)

1.3.1 Iron deficiency anemia

1.3.2 Iron overload

1.3.3 Hypothyroidism

1.3.4. Hypocalcemia

1.4 State **two** laboratory tests that are used in the diagnosis of iron overload. (12 marks)

1.5 Explain the biochemical basis for the recommendation of zinc supplementations for post-surgical patients. (30 marks)

02.

2.1.

2.1.1. What is glycogenolysis? (10 marks)

2.1.2 Briefly explain the biological significance of the glycogenolysis (15 marks)

2.1.3 Explain how cyclic AMP regulates the glycogen metabolism in the liver. (25 marks)

2.2 Explain the biochemical basis for the following.

2.2.1 Defects in N-acetyl glutamate synthase (NAGS) gene results in severe hyperammonemia. (25 marks)

2.2.2. Blood sample collecting tubes for glucose analysis contain sodium fluoride. (25 marks)

3.0

3.1. What is ketogenesis? (05 marks)

3.2. Name **three** types of ketone bodies found in the body? (15 marks)

3.3. What is ketosis? (20 marks)

3.4. Explain how prolonged ketosis causes ketoacidosis. (30 marks)

3.5. Explain how ethanol causes fatty liver. (30 marks)