



FACULTY OF ALLIED HEALTH SCIENCES, UNIVERSITY OF RUHUNA
 Department of Medical Laboratory Science
 Fifth End Semester Examination – June 2025 – 2020/2021 Batch
 MLS 3133 Clinical Biochemistry I – Theory (SEQ)

Date: 17th June 2025

Time: 9.00 a.m. – 9.45 a.m.

Duration: 45 minutes

Answer all questions

Index Number:

1.

1.1 Quality control (QC) checks for spectrophotometers are essential for ensuring the performance of the instrument.

1.1.1 State **four** quality control checks performed in a spectrophotometer. (20 marks)

1.1.2 Define **three** quality control checks stated in 1.1.1. above. (30 marks)

1.1.3 Briefly explain why quality control checks are important to ensure the accuracy and reliability of results. (20 marks)

1.2 Discuss the differences in endpoint, two-point fixed time and kinetic/enzymatic assays performed in clinical laboratory investigations. (30 marks)

2.

2.1 List **three** hormones produced by the anterior pituitary. (15 marks)

2.2 Briefly describe the biochemical investigations used to diagnose primary hypothyroidism with expected changes. (25 marks)

2.3 List **three** hormones produced by the adrenal cortex. (15 marks)

2.4 In primary adrenal insufficiency (Addison's disease), abnormal skin pigmentation is observed. Briefly explain the underlying scientific reason for this. (15 marks)

2.5 Briefly describe the pre-analytical errors that may affect the accuracy of fasting plasma glucose assay result. (30 marks)

3.

3.1 What is a 'Buffer'? (05 marks)

3.2 List **three** protein buffer systems in the body. (15 marks)

3.3 List **two** causes for respiratory acidosis. (15 marks)

3.4 List **three** common causes for metabolic acidosis. (15 marks)

3.5 What is the anion gap range for a healthy adult? (10 marks)

3.6 Briefly describe the changes that could occur with respect to pH, PCO₂ and HCO₃⁻ in metabolic alkalosis and metabolic acidosis. (40 marks)

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