



**COLLEGE OF HEALTH, AGRICULTURE AND NATURAL SCIENCES  
DEPARTMENT OF BIOMEDICAL AND MEDICAL LABORATORY  
SCIENCES**

**BACHELOR OF MEDICAL LABORATORY SCIENCES HONOURS DEGREE**

**NLS102: CLINICAL CHEMISTRY I**

**END OF FIRST SEMESTER FINAL EXAMINATIONS**

**NOV 2021**

**LECTURER: MR G. MALUNGA**

**19 NOVEMBER 2021**

**DURATION: 5 HOURS**

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***INSTRUCTIONS***

1. Write your candidate number on your answer sheets.
2. Answer any **One** question of your choice.
3. Each full question carries 100 marks
4. Submit your answer scripts as PDF documents.
5. Use the following specifications in your answer scripts:  
Font: Times New Roman  
Font size: 12  
Line spacing: 2.0
6. Credit will be given for logical, systematic and neat presentations.

**Answer any ONE question**

**Question 1**

Explain in detail how the following methods can be applied in the measurement of different serum or urine analytes in a clinical chemistry laboratory. Illustrate your answer with named examples.

- a) Electrophoresis [25]
- b) Turbidimetry [25]
- c) Atomic Absorption Spectrophotometry [25]
- d) Potentiometry [25]

**Question 2**

Give a detailed analysis of the following biochemical pathways that are involved in carbohydrate metabolism.

- a) Glycolysis [40]
- b) The Electron transport chain [30]
- c) The Pentose Phosphate Pathway [30]

**Question 3**

When red blood cells are broken down in the reticuloendothelial system, the haem component is converted into bilirubin which is then excreted since it is toxic.

- a) Describe in detail, the metabolism and excretion of bilirubin [60]
- b) Explain the significance of laboratory measurement of direct and indirect bilirubin [40]

**THE END**