



**PAMIBIA UNIVERSITY  
OF SCIENCE AND TECHNOLOGY**

**FACULTY OF HEALTH, APPLIED SCIENCES AND NATURAL RESOURCES**

**DEPARTMENT OF HEALTH SCIENCES**

<b>QUALIFICATION:</b> BACHELOR OF MEDICAL LABORATORY SCIENCES	
<b>QUALIFICATION CODE:</b> 08BMLS	<b>LEVEL:</b> 7
<b>COURSE CODE:</b> CLC711S	<b>COURSE NAME:</b> CLINICAL CHEMISTRY 3
<b>SESSION:</b> JUNE 2022	<b>PAPER:</b> THEORY
<b>DURATION:</b> 3 HOURS	<b>MARKS:</b> 120

<b>FIRST OPPORTUNITY QUESTION PAPER</b>	
<b>EXAMINER(S)</b>	DR MUNYARADZI MUKESI
<b>MODERATOR:</b>	PROF GREANIOUS A. MAVONDO

<b>INSTRUCTIONS</b>
<ol style="list-style-type: none"><li>1. Answer ALL the questions.</li><li>2. Write clearly and neatly.</li><li>3. Number the answers clearly.</li></ol>

**THIS QUESTION PAPER CONSISTS OF THREE PAGES** (Including this front page)

## SECTION A [60 marks]

### QUESTION 1

[20 marks]

A 28-year-old man with a long history of intravenous drug abuse and chronic hepatitis B presented with jaundice. Physical examination revealed an anaemic, malnourished man with dependent pitting oedema and ascites. He has the following laboratory results:

Analyte	Result	Reference range
Total serum protein	82	65-85 g/L
Albumin	26	35-55 g/L
Calcium	1.68	2.1-2.6 mmol/L
Urea	25.4	2.5-8.6 mmol/L
Creatinine	393	60-110 $\mu$ mol/L
Total bilirubin	89	10-40 $\mu$ mol/L
Aspartate Aminotransferase (AST)	200	5-50 U/L
Alanine Aminotransferase (ALT)	350	4-50 U/L
Lactate Dehydrogenase (LDH)	300	100-200 U/L
Urinalysis	Positive for bilirubin	

1.1 Discuss the clinical significance of the biochemical tests.

### QUESTION 2

[20 marks]

An adult male patient presented at his physician complaining of episodes of stomach cramps followed by diarrhoea usually in about 2 hours from consumption of dairy products. The physician suspects lactose intolerance and would want to confirm the diagnosis. Discuss the following:

2.1 Pathophysiology of the condition. (10 marks)

2.2 Tests that will be useful in diagnosis (10 marks)

**QUESTION 3****[20 marks]**

An elderly patient was brought to the Casualty Department of a local hospital seemingly unwell and looking frail. Family members reported that he had been in that state for almost a week and was not getting better. However, it had started when he complained of severe chest pain. The attending Physician requested the following biochemical tests: Myoglobin, Total Creatine Kinase (CK), Creatine Kinase MB (CK-MB), Aspartate Transferase (AST), Lactate Dehydrogenase (LDH), Troponin T and Troponin I.

3.1 Critically evaluate the usefulness of each test with respect to the case presentation. Use relevant information to support your argument.

**SECTION B [60 marks]****QUESTION 4****[20 marks]**

Using the hypothalamus-anterior pituitary-thyroid axis, discuss direct dynamic, direct static, and indirect assessment of anterior pituitary function.

**QUESTION 5****[20 marks]**

Discuss how macroscopic analysis of specimens aids in the diagnosis of disease in the clinical chemistry laboratory. Use relevant examples to illustrate your answer.

**QUESTION 6****[20 marks]**

Briefly describe the importance of a Levey-Jennings chart as part of the process of ensuring quality of the testing process in the laboratory.

**TOTAL 120 MARKS****END OF EXAMINATION**