



(University of Choice)

**MASINDE MULIRO UNIVERSITY OF  
SCIENCE AND TECHNOLOGY  
(MMUST)**

**(MAIN CAMPUS)**

**UNIVERSITY EXAMINATIONS (MAIN PAPER)  
2022/2023 ACADEMIC YEAR**

**FIRST YEAR SECOND SEMESTER EXAMINATIONS**

**FOR THE DEGREE  
OF**

**FOR THE DEGREES OF  
MASTER OF SCIENCE IN MEDICAL LABORATORY  
SCIENCES (CLINICAL CHEMISTRY OPTION)**

**COURSE CODE: BMC 825**

**COURSE TITLE: DIGESTIVE SYSTEM AND CHEMICAL  
HEPATIC PATHOLOGY**

**DATE: 25<sup>TH</sup> APRIL 2023**

**TIME: 11.00AM – 2.00PM**

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**INSTRUCTIONS TO CANDIDATES**

- *This paper has five (5) questions*
- *Answer questions ONE (1) and any other THREE (3)*
- *Answer the questions in the MMUST examination booklets provided*
- *Identify yourself by your university registration number only*
- *Write your university registration number on each leaf of the examination booklet with your answers*

**TIME: 3 Hours**

MMUST observes ZERO tolerance to examination  
cheating

This Paper Consists of 2 Printed Pages. Please Turn Over

1. Highlighting the biochemical markers to watch out for and possible derangement in their blood levels, explain briefly the aetiological role of the following in calcium malnutrition:

- a) Liver cirrhosis (5marks)
- b) Pancreatic lithiasis (5marks)
- c) Cholestasis (5marks)
- d) Renal disease (5marks)
- e) Enteritis (5marks)

2. Explain pathogenetic role of severe chronic dysfunction of the pancreas on the one hand as an endocrine organ and on the other an exocrine organ, in derangement of carbohydrate biochemistry in the body (25marks)

3. Discuss the chemical pathology of gastritis and its role this in the aetiology and pathogenesis of maldigestion (25marks)

4. Suppose you receive a pathological laboratory requisition form with the following information: **Ho:** Chronic *steatorrhea* with prolonged *prothrombin time* and signs of *hypocalcaemia*; **Dx:** ?*Malabsorption*, probably due to *maldigestion*, secondary to chronic gastric ulceration and insufficiency of other digestive system structures concerned with nutrient digestion and absorption.

- (i) Explain the difference as well as link between malabsorption and maldigestion, in this context (7marks)
- (ii) Explain the link between the two conditions with both steatorrhea and prolonged prothrombin time (8marks)
- (iii) Explain pathophysiology of **four (4)** other blood chemistry abnormalities, besides *hypocalcaemia*, you should expect to find in this condition, if the clinician's hypothesis about the aetiology of *steatorrhea*, *prolonged prothrombin time* and signs of *hypocalcaemia* was correct((10marks).

5. Explain the pathogenesis and pathophysiology and laboratory biochemical diagnosis of cholelithias and biliary colic (25marks)