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

COURSE CODE: BMC 822

**COURSE TITLE: BONE AND MUSCLE CHEMICAL
PATHOLOGY**

DATE: 17TH APRIL 2023 TIME: 11.00AM – 2.00PM

**INSTRUCTIONS TO CANDIDATES
Answer all questions. DO NOT WRITE ON THE QUESTION PAPER.**

TIME: 3 Hours

MMUST observes ZERO tolerance to examination
cheating

This Paper Consists of 2 Printed Pages. Please Turn Over

1. In the context of bone and muscle disease write brief notes on the following highlighting the pathological significance and pathogenesis and direction of derangements in the related pathological conditions:
 - a) Myoglobin (**5marks**)
 - b) Urinary hydroxyproline (**5marks**)
 - c) Serum calcium(**5marks**)
 - d) Aldolase (**5marks**)
 - e) Lactic acid (**5marks**)
2. On the basis of (among other considerations), the test receiver operating characteristics and relevance for muscle type, discuss the five biochemical molecules (Creatine kinase, aldolase, natriuretic peptide, transaminases and lactate dehydrogenase (LDH) as muscle disease biomarkers. (**25marks**)
3. Focusing mainly the pathophysiology and laboratory biochemical investigation, distinguish between the bone diseases *osteoporosis* and *osteomalacia* (**25marks**)
4. Explain the chemical pathology of myopathy and cardiomyopathy (**25marks**)