



(University of Choice)

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

MAIN CAMPUS

**UNIVERSITY EXAMINATIONS
2023/2024 ACADEMIC YEAR**

MAIN EXAMS

SECOND YEAR FIRST TRIMESTER EXAMINATIONS

FOR THE DEGREE OF

BSC. HUMAN NUTRITION AND DIETETICS

COURSE CODE: HND 204

COURSE TITLE: MICRONUTRIENTS

DATE: THURSDAY, 14TH DECEMBER, 2023

TIME: 1200NOON -200PM

INSTRUCTIONS TO CANDIDATES

There are three sections in the paper, answer questions in **ALL** sections A and B.

1. **Section A** comprises of 10 multiple choice questions.
2. **Section B** comprises of 5 short answer questions.
3. **Section C** comprises of 3 essay type questions. Answer **ANY TWO**

TIME: 2 Hours

MMUST observes **ZERO** tolerance to examination cheating

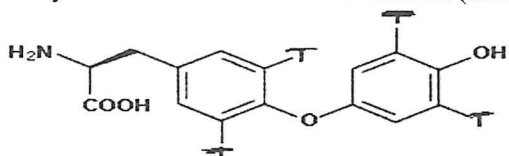
This Paper Consists of 3 Printed Pages. Please Turn Over.

SECTION A: ANSWER ALL QUESTIONS (10 MARKS)

- One of the following vitamins is also seen more as a hormone:
 - Vitamin A
 - Vitamin D
 - Vitamin K
 - Vitamin E
- Vitamin _____ occurs as mixture of compounds called tocopherols.
 - A
 - D
 - K
 - E
- The highest concentrations of copper in the body occurs in the _____.
 - Liver
 - Muscles
 - Brain
 - Kidneys
- The synthetic Vitamin K is found in _____ form.
 - K3
 - K1
 - K2
 - All of the above
- One of the following vitamins is produced from cholesterol as the precursor:
 - Vitamin A
 - Vitamin D
 - Vitamin E
 - Vitamin K
- In what form is iron mainly stored in the body?
 - Ferritin
 - Apoferritin
 - Transferrin
 - All of the above
- The following Vitamins all have coenzymes **EXCEPT**:
 - Pyridoxine
 - Riboflavin
 - Ascorbic Acid
 - Thiamine
- The following mineral-vitamin interactions are important for development of strong bones and teeth.
 - Iron-Vitamin B₁₂
 - Calcium-Vitamin D
 - Calcium-Vitamin C
 - Phosphorus-Vitamin K
- Ergosterol is a form of which vitamin?
 - Vitamin A
 - Vitamin D
 - Vitamin E
 - Vitamin K
- Pteric acid is a component of vitamin _____.
 - A
 - Folic acid
 - E
 - K

SECTION B: ANSWER ALL QUESTIONS (30 MARKS)

- Outline the classification for vitamin A status in the body (6 marks)
- Highlight the Deficiency manifestation of Vitamin B₁ (6 marks)
- (a) Identify the hormone below and the mineral (indicated as T) that it is made of (2 marks)



- (b) Describe 2 food- based interventions that can be used to ensure that a population is not deficient of the mineral identified in (a) above (4 marks)
14. Highlight how the minerals Manganese and Selenium are important (6 marks)
15. Highlight the synthesis of Vitamin D in the human body (6 marks)

SECTION C: Answer ANY TWO questions (30 Marks)

16. Discuss the interrelation between vitamin B12 and Folates in the human physiology (15 marks)
17. Discuss the physiological inter-relation between Calcium and Vitamin D in the body (15 marks)
18. Iron is considered a micronutrient of public health importance. Discuss (15 marks)

