



UNIVERSITY EXAMINATIONS

EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF SCIENCE IN HUMAN NUTRITION AND DIETETICS

HNDS 235: MICRONUTRIENTS

STREAMS: B.Sc (HUMAN NUTRITION AND DIETETICS) Y2S2 TIME: 2 HOURS

DAY/DATE: MONDAY 05/07/2021

11.30 A.M. – 1.30

P.M.

INSTRUCTIONS:

- Answer **ALL** questions.
- Do not write anything on the question paper.
- This is a **closed book exam**, no reference materials are allowed in the examination room.
- **No** use of mobile phones or any other unauthorized materials.
- Write your answers legibly and use your time wisely.

SECTION A: MULTIPLE CHOICE QUESTIONS [ONE MARK EACH] [10 MARKS]

1. Which of the following statements does not describe water-soluble vitamins?
 - A. Water-soluble vitamins are absorbed easily from the intestinal tract into the blood
 - B. Water-soluble vitamins are stored in large amounts in the body
 - C. Water-soluble vitamins are found in a wide variety of foods
 - D. Water-soluble vitamins are rarely toxic

2. Which of the following vitamins pose the greatest risk of toxicity?
 - A. Vitamin A and D
 - B. Vitamin C and K
 - C. Vitamin E and B12
 - D. Thiamin and Riboflavin

3. Phylloquinone and menaquinone are better known as?
 - A. Ascorbic acid.

HNDS

- B. Vitamin B6.
 - C. Vitamin K
 - D. Vitamin B12
4. The following are good sources of vitamin D except?
- A. Sunlight.
 - B. Blueberries.
 - C. Salmon, tuna sardines and mackerel.
 - D. Fortified milk and other daily products.
5. Deficiency of thiamine in the diet causes?
- A. Osteopenia
 - B. Pellagra
 - C. Beriberi
 - D. Cretinism
6. Dietary sources of antioxidants include
- A. Vitamins A, E, and C
 - B. Vitamins B6, Iron and Calcium
 - C. Vitamins D, A and B
 - D. Carotenoids, Vitamin C and Iron
7. Those nutrients that the body cannot synthesize and must be supplied in the diet are called?
- A. Trace elements
 - B. Micronutrients
 - C. Essential nutrients
 - D. Non-essential nutrients
8. Which of the following will increase in vitamin D deficiency ?
- A. The plasma concentration of prothrombin
 - B. The plasma concentration of preprothrombin
 - C. The plasma activity of alkaline phosphatase
 - D. The plasma activity of acid phosphatase
9. Which of the following mineral is needed in trace amounts?
- A. Zinc
 - B. Calcium
 - C. Magnesium
 - D. Phosphorous
10. Which of the following foods contain goitrogens;

- A. Rice
- B. Meat
- C. Nuts
- D. Brassicas

SECTION B: SHORT ESSAY QUESTIONS

[30 MARKS]

1. Explain the following concepts [4 marks]
 - i. Nutrient bioavailability
 - ii. Cholecalciferol

2. Brian has just heard an advert from a local radio station promoting the intake of Vitamin C. Explain to him the main functions of Vitamin C in the human Body. [4 marks]

3. Explain the process of calcium homeostasis in the human body. [4 marks]

4. Iron remains a micronutrient deficiency of public health concern in the country. Explain four (4) strategies that the government can employ to overcome its deficiency among the population. [4 marks]

5. Outline the functions of the following micronutrients in the human body [4 marks]
 - i. Vitamin B12
 - ii. Magnesium

6. Explain two (2) differences between vitamins and minerals [4 marks]

7. Outline four (4) clinical manifestation of zinc deficiency in an individual [4 marks]

8. Elucidate two (2) factors affecting mineral bioavailability in the human body [2 marks]

SECTION C: LONG ESSAY QUESTIONS

[30 MARKS]

1. You are expected to make a continuous medical education presentation on vitamin A. Highlight on the key points that need to be captured in the

HNDS

presentation in the following areas; introduction, functions, deficiency, sources and toxicity. [10 marks]

2. Peter has recently seen and heard a lot on the amount of salt (sodium) in the diet. He is surprised by the increasing number of articles that advise the public on the reduction of salt in food. Explain to him the negative effect of excessive intake of sodium in our body and the strategies he can adopt to reduce its intake. [10 marks]
 3. You are working in a referral hospital and a patient with the following symptoms is presented to you for nutrition counseling and guidance: irregular heartbeat, loss of appetite, muscle cramps and pain. Explain the deficiencies that the patient could be suffering from and the foods you would prescribe to overcome the problem. [10 marks]
-