



Technical University of Mombasa

Faculty of Applied and Health Sciences

DEPARTMENT OF PURE AND APPLIED SCIENCES

DIPLOMA IN INDUSTRIAL MICROBIOLOGY AND BIOTECHNOLOGY
(DIMBT 11M)

ABT 2201 : VITAMINS AND MINERALS

SEMESTER: EXAMINATIONS

SERIES: DECEMBER 2013

TIME: 2 HOURS

INSTRUCTIONS:

You should have the following for this paper

- *Answer booklet*

This paper consists of **FIVE** questions.

Answer Question **ONE (compulsory)** and any other **TWO** questions

This paper consists of 3 PRINTED pages

Question ONE

- (a) (i) Define the following terms and give two examples in each.
- Macrominerals (2marks)
 - Microminerals (2marks)
- (ii) State two biochemical functions of fluorine. (2marks)
- (iii) Give TWO disease states associated with fluorine. (2marks)
- (b) Differentiate hyponatremia and hyprenatremia (4marks)
- (c) (i) Outline the beneficial effects of β -carotene (4marks)
- (ii) Give the structure of vitamin A alcohol. (2marks)
- (iii) Give TWO animal and TWO plant sources of vitamin A (2marks)
- (iv) State FOUR disease states associated with deficiency of vitamin A. (4marks)
- (d) (i) Name the TWO main classes of vitamins. (2marks)
- (ii) State FOUR differences between the two classes in d (i) above. (4marks)

Question TWO

- (a) (i) Define calcitriol and give its main function (2marks)
- (ii) Explain production of calcitriol. (4marks)
- (b) Explain the activity of calcitriol in the following:
- (i) On intestine (3marks)
 - (ii) On bones (3marks)
 - (iii) On Kidney (3marks)

Question THREE

- (a) Differentiate wet beriberi from dry beriberi (5marks)
- (b) (i) Give the structures of ascorbic acid. (2marks)
- (ii) Explain FOUR biochemical functions of vitamins C (2marks)

Question FOUR

- (a) Explain Wilson's disease and give the characteristics. (6marks)

(b) Describe absorption of iron from consumed food. **(4marks)**

(c) Give FIVE biochemical functions of iron **(4marks)**

Question FIVE

The following are essential minerals in nutrition

(a) Calcium

(b) Sodium

(c) Iodine

(i) Name the diseases associated with the deficiency of each. **(6marks)**

(ii) State the symptoms related to the diseases in (i) above . **(6marks)**

(iii) Give TWO food sources for each of the minerals **(3marks)**