

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

**SECOND YEAR EXAMINATION FOR THE AWARD OF DEGREE OF
BACHELOR OF SCIENCE IN BIOCHEMISTRY**

BIOC 209: BIOCHEMISTRY OF VITAMINS AND MINERALS

STREAMS: BSC (BIOCHEM)

TIME: 2 HOURS

DAY/DATE: TUESDAY 02/08/2016

2.30 PM – 4.30 PM

INSTRUCTIONS:

1. (a) Differentiate between cholecalaterol and ergoculeiterol. [2 marks]
- (b) Describe physiological function of calcium in the body. [2 marks]
- (c) Draw the structure of pantothenic acid and riboflavins. [2 marks]
- (d) Outline two clinically significant reactions that require vitamins B₁₂ as a co-factor [2 marks]
- (e) Explain the meaning of the following
 - (i) Osteomalacia
 - (ii) Hermorrhagic syndrome
 - (iii) Nepholithiasis [3 marks]
- (f) What is the relationship between chromium and diabetic diseases (patients) [2 marks]
- (g) Describe the principals of zinc ore [2 marks]
- (h) Summarize four characteristics symptoms of pellagra. [2 marks]
- (i) List six principal functions of tocopherols [3 marks]
- (j) Write short notes on pendned's syndrome. [2 marks]
- (k) Explain 3 genetic diseases associate with copper. [3 marks]

- (l) Describe ascorbic acid biosynthesis. [4 marks]
- (m) What is the relationship between biotin and avidin proteins? [2 marks]
- (n) Explain how retinoic acid regulates gene expression. [2 marks]
2. (a) Describe the role of vitamin A in mediating vision. [12 marks]
- (b) Discuss biological significance of folic acid (folate) [8 marks]
3. (a) Discuss absorption, transport and metabolism of calcium in the body. [12 marks]
- (b) Discuss the role of vitamin k in blood clotting. [8 marks]
4. (a) Draw the structure of FAD [5 marks]
- (b) Explain selenium as non-metallic element in human nutrition. [15 marks]
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