



**UNIVERSITY EXAMINATIONS**  
**THIRD YEAR EXAMINATION FOR THE AWARD OF THE DEGREE OF**  
**BACHELOR OF SCIENCE BIOCHEMISTRY**  
**SECOND SEMESTER 2021/2022**  
**(FEBRUARY-JUNE, 2022)**

**BIOC 321: BIOCHEMISTRY OF VITAMINS**

**STREAM: Y3 S2**

**TIME: 2 HOURS**

**DAY: MONDAY, 3:00 PM – 5:00 PM**

**DATE: 23/05/2022**

**INSTRUCTIONS:**

- 1. Do not write anything on this question paper.***
- 2. Answer all questions in section A and any TWO in section B.***

**SECTION A: ANSWER ALL QUESTIONS (40 MARKS)**

1. (a) Define the term co-enzyme as applied in Biochemistry. (1 marks)  
(b) Outline four characteristics of coenzymes. (4 marks)
2. Describe the biosynthesis of vitamin A (5 marks)
3. By giving examples, explain four roles of Thiamine as an active coenzyme. (5 marks)
4. Briefly explain the biosynthesis of vitamin B<sub>2</sub> (5 marks)
5. Explain five functional roles of vitamin D (5 marks)
6. Explain five reasons why the Kenyan government ensures that cooking oil products have Vitamin E additives. (5 marks)
7. Explain why vitamin B6 is considered as a complex. (5 marks)
8. Explain the functions of Tetrahydrofolate. (5 marks)

**SECTION B: ANSWER ANY TWO QUESTIONS (30 MARKS)**

1. Discuss in details the sources, functional roles and deficiency of ascorbic acid. (15 marks)
2. Write an essay on Vitamin B<sub>12</sub> (15 marks)
3. Discuss the synthesis, functional roles and deficiency of niacin. (15 marks)
4. Write an essay on vitamin K (15 marks)