



## **UNIVERSITY EXAMINATIONS**

**FIRST YEAR EXAMINATION FOR THE AWARD OF THE DEGREE OF  
BACHELOR OF SCIENCE BIOLOGY, EDUCATION, ENVIRONMENTAL  
SECOND SEMESTER 2022/2023  
[JANUARY-APRIL, 2023]**

### **BIOC 121: PROTEIN CHEMISTRY AND ENZYMES**

**STREAM: Y1S2**

**TIME: 2 HOURS**

**DAY: MONDAY, 12:00 – 2:00 PM**

**DATE: 27/03/2023**

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#### **INSTRUCTIONS**

- 1. Do not write anything on this question paper.**
- 2. Answer question ONE and any other TWO questions.**

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

- Differentiate between the following terms as used in biochemistry:
  - Metabolism and Catabolism (2 marks)
  - Lyases and Ligases (2 marks)
  - Cofactors and Coenzymes (2 marks)
- By giving examples, explain the two processes of amino acids degradation. (6 marks).
- Describe in details transamination as a process of amino acid synthesis. (4 marks).
- Outline the uses of amino acids in industry (4 marks).
- Explain the zwitterion ion in amino acids (4 marks).
- Explain seven factors that affect enzyme activities (7 marks).
- Describe the two models for formation of enzyme-substrate (ES) complex. (4marks).
- Explain five groups of conjugated proteins (5 marks).

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

9. Discuss protein synthesis (15 marks).
10. Explain in details the levels of organization of proteins (15 marks).
11. Discuss the properties of enzymes (15 marks).