



# **SOUTH EASTERN KENYA UNIVERSITY**

## **UNIVERSITY EXAMINATIONS 2016/2017**

### **FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN BIOCHEMISTRY AND MOLECULAR BIOLOGY**

#### **BCH 102: PROTEINS AND ENZYMES I**

**DATE: 16<sup>TH</sup> DECEMBER, 2016**

**TIME: 1.30.3.30 P.M**

### **INSTRUCTIONS TO CANDIDATES**

- (a) Answer ALL the Questions in Section A**
- (b) Answer ANY TWO Questions in Section B**
- (c) Illustrate your answers with well labeled diagrams where appropriate**

#### **SECTION A (30 marks)**

1. Briefly, discuss the forces stabilizing proteins structure. **(3 marks)**
2. Giving an example in each, state **six** functions of proteins. **(3 marks).**
3. From Michaelis–Menten equation, derive Lineweaver–Burk equation. **(3 marks)**
4. State **three** applications of inhibitors. **(3 marks)**
5. List any **three** agents that cause protein denaturation. **(3 marks)**
6. Define conformation and configuration as applied in protein structure. **(3 marks)**
7. Briefly, discuss competitive reversible enzyme inhibitors. **(3 marks)**
8. Citing an example in each case, distinguish globular from fibrous proteins. **(3 Marks)**
9. Describe the various types of enzyme inhibition. **(3 Marks)**

10. Define the following terms; **(3 Marks)**
- a. Cofactor
  - b. Zymogens
  - c. Prosthetic groups

**SECTION B (40 marks)**

11. Discuss the levels of protein architecture. **(20 marks)**
12. Discuss the Michaelis–Menten equation. **(20 marks)**
13. Discuss the structure of hemoglobin. **(20 marks)**
14. Discuss enzymatic mechanisms involved in regulating metabolic activities. **(20 marks)**