



**KISII UNIVERSITY**  
**UNIVERSITY EXAMINATIONS**

**FOURTH YEAR EXAMINATION FOR THE AWARD OF THE DEGREE OF**  
**BACHELOR OF SCIENCE IN LABORATORY TECHNOLOGY**  
**FIRST SEMESTER 2022/2023**  
**[SEPTEMBER-DECEMBER, 2022]**

**BSLT 423: FERMENTATION AND ENZOMOLOGY TECHNIQUES**

**STREAM: Y4S1**

**TIME: 2 HOURS**

**DAY: MONDAY, 9:00 – 11:00 AM**

**DATE: 19/12/2022**

**INSTRUCTIONS**

- 1. Do not write anything on this question paper.***
- 2. Answer ALL Question in Section A and any TWO Questions in Section B.***

**SECTION A:**

1. During fermentation; primary and secondary metabolites are obtained.  
What do you understand in regard to this? [4Marks]
2. Using examples, give some of the uses of enzymes in fermentation. [4Marks]
3. Briefly describe downstream processing. [4Marks]
4. Outline the principle of industrial fermentation technique. [4Marks]
5. Describe the different types of fermentation. [4Marks]
6. Describe the various processes of fermentation. [4Marks]
7. Differentiate between aerobic and anaerobic fermentation processes. [4Marks]
8. Outline the four major categories of fermentation technology. [4Marks]

9. Briefly describe the significance of fermentation in modern technology. [4Marks]
10. Name and classify at least four enzymes produced by fermentation microbes. [4Marks]

## **SECTION B**

### **ANSWER ANY TWO (15MKS)**

11. (a) Draw a well labelled diagram of a bacterial growth curve and outline its use in fermentation. [5Marks]
- (b) Describe single cell protein producing organisms and their substrates in fermentation. [10Marks]
12. Discuss curd preparation from milk fermentation technology. [15Marks]
13. Discuss batch fermentation outlining its phases. [15Marks]