

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

FOURTH YEAR EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR
OF SCIENCE IN FOOD SCIENCE & TECHNOLOGY

FOST 425: APPLICATION OF ENZYME TECHNOLOGY IN FOODS

STREAMS: FOST Y4S1

TIME: 2 HOURS

DAY/DATE: FRIDAY 8/12/2017

8.30 A.M - 10.30 A.M.

INSTRUCTIONS:

- Answer ALL Questions in Section A and any TWO Questions in Section B

SECTION A: [30 MARKS]

QUESTION ONE

Explain the differences between the following terms as commonly used in Enzyme technology

- (a) Mutant and hybrid. [2 Marks]
- (b) Genetic engineering and protein engineering. [2 Marks]
- (c) Gene cloning and recombinant DNA. [2 Marks]

QUESTION TWO

- (a) Briefly explain the importance of genetic engineering and how it can be carried during enzyme production. [4 Marks]
- (b) Explain the characteristics of enzymes that facilitate their application in food. [5 Marks]

QUESTION THREE

- (a) Explain the key differences between intracellular and extracellular enzymes. [4 Marks]
- (b) Explain the role of plasmids during the production of pure enzymes. [2 Marks]

QUESTION FOUR

- (a) Briefly explain reasons why we should embrace application of enzymes in food processing [4 Marks]
- (b) Explain four main methods that are available for immobility enzymes. [4 Marks]
- (c) Why should we use molecular methods over culture methods when testing food for safety reasons? [2 Marks]

SECTION B: [40 MARKS]

QUESTION FIVE

- (a) Discuss the technological applications of enzymes in food industries. [12 Marks]
- (b) Explain why enzymes are preferably extracted from microbes rather than plant and animals sources. [8 Marks]

QUESTION SIX

- (a) Discuss the commercial production of enzymes by surface and submerged cultivation; highlighting the roles played at each stage. [12 Marks]
- (b) Explain EIGHT key differences between bacteriocins and antibiotics. [8 Marks]

QUESTION SEVEN

- (a) Discuss the advantages and disadvantages of using enzymes during production of various products. [12 Marks]
 - (b) With clear illustrations, explain the main tools that are used in genetic engineering. [8 Marks]
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