



**ELIZADE UNIVERSITY, ILARA MOKIN, ONDO STATE
DEPARTMENT OF PHYSICAL AND CHEMICAL SCIENCES
2018/2019 FIRST SEMESTER B.Sc. DEGREE EXAMINATIONS**

BCH 413: ENZYME BIOTECHNOLOGY

Exam Paper

INSTRUCTIONS: ANSWER ANY THREE (3) QUESTIONS

TIME: 2 HOURS

1.
 - (a) Discuss enzyme immobilization and its types (8 marks)
 - (b) Discuss extensively industrial enzymes and their applications (4 marks)
 - (c) Discuss using appropriate illustration enzyme reactors and its types (6 marks)
 - (d) Discuss phases of microbial growth (2 marks)

2.
 - (a) Discuss improved prospects of enzyme applications (4 marks)
 - (b) Highlight the advantages and disadvantages of solid state and submerged fermentation. (4 marks)
 - (c) Mention factors that guide selection of species for industrial fermentation (4 marks)
 - (d) Discuss briefly with examples the types of metabolites produced during microbial growth (4 marks)

3.
 - (a) Using appropriate illustration, explain the process involved in the large-scale microbial production of enzyme to packaging of the enzyme (4 marks)
 - (b) Highlight the advantages and disadvantages of using fungi and bacteria for Industrial fermentation (3 marks)
 - (c) What is enzyme formulation and why is it important in enzyme biotechnology (5 marks)
 - (d). List the downsides to the use of chemostat in continuous culture fermentation and the possible mechanisms devised to overcome these challenges (8 marks)

4.
 - (a) Discuss how microorganisms for industrial applications are isolated (3 marks)
 - (b) Highlight importance of screening industrially important microorganisms (3 marks)
 - (c) List methods for preserving microorganisms (4 marks)
 - (d) Fermentation is generally divided into four types, list the types and discuss any two in detail (10 marks)