



ELIZADE UNIVERSITY, ILARA MOKIN, ONDO STATE
DEPARTMENT OF PHYSICAL AND CHEMICAL SCIENCES
2017/2018 SECOND SEMESTER B.Sc. EXAMINATIONS

BCH 408: INDUSTRIAL BIOCHEMISTRY

Time Allowed: 2 Hours

Instructions: Answer any FOUR (4) questions

1. (a) Highlight the importance of microorganisms to industrial fermentation processes (10 marks)
- (b) Illustrate the pivotal role pyruvate plays in most industrial fermentation process (10 marks)
- (c) Explain how microorganisms are characterized (5 marks)
2. (a) Using an appropriate illustration, describe a typical batch fermenter (12 marks)
- (b) Distinguish between primary and secondary metabolites? Give suitable examples of each (5 marks)
- (c) What is anabiosis? Highlight the types and features of it (8 marks)
3. (a) Discuss how products are recovered after industrial fermentation? (10 marks)
- (b) Discuss the different techniques used in the disintegration/disruption of microbial cells in the process of obtaining useful products after fermentation (10 marks)
- (c) Explain how the isolation of microorganisms for industrial purposes are carried out (5 marks)
4. (a) What is strain improvement? Explain techniques and targets for strain improvement (10 marks)
- (b) Discuss the main conservation method for industrial microorganisms (4 marks)
- (c) Explain the types of fermentation, the advantages and disadvantages of each (11 marks)
5. (a) Discuss briefly the roles of precursors, carbon and nitrogen source, antifoam, inhibitors, inducers and elicitors and water in fermentation media formulation (10 marks)
- (b) Illustrate the process involved in the large-scale production and purification of enzymes (7 marks)
- (c) Describe a typical chemostat (8 marks)
6. (a) Describe gene dosage and its application in industrial processes (8 marks)
- (b) Using appropriate illustration, describe "mutation breeding for crop improvement" (8 marks)
- (c) Describe how strain improvement is used in the over-production of a named secondary metabolite (9 marks)