



ILARA-MOKIN, ONDO STATE  
DEPARTMENT OF PHYSICAL AND CHEMICAL SCIENCES  
2019/2020 FIRST SEMESTER B.Sc. DEGREE EXAMINATIONS

BCH 415: PROCESS BIOCHEMISTRY



SECTION A

ANSWER QUESTION 1 AND ANY OTHER QUESTION

TIME: 2 HOURS

1. a. Discuss the classification of anaerobic bacteria (5 marks)  
b. Briefly discuss the production of any **THREE** of the following microbial products with detailed illustration where possible  
(i.) bread (ii) cheese (iii) beer (iv.) wine (v) yoghurt (15 marks)  
c. Discuss in brief the four types of culture media used in the cultivation of anaerobic bacteria.  
(Provide the necessary illustration where possible) (10 marks)
2. a. Describe the steps involved in dry mill ethanol production AND illustrate the typical process of bioethanol production (12 marks)  
b. List the anaerobic systems for cultivation (2 marks)  
c. List the types of anaerobes with examples (3 marks)  
d. Distinguish between anaerobic fermentation and respiration (3 marks)
3. a. Discuss anaerobic fermentation as well as the pathways for ethanol and lactate production from glucose in yeasts (2 marks)  
b. Briefly summarize the concept of strain improvement (2 marks)  
c. Give six (6) examples of anaerobic respiration using different electron acceptors focusing on the respiration types, electron acceptor, product, organisms and examples (provide your answers in tabular form) (12 marks)  
d. Briefly discuss the roles of anaerobes in industrial biotechnology (4 marks)

SECTION B: ANSWER ALL QUESTIONS

4. a. What are methanogens? (2 mark)  
b. List the industrial applications of methanogens (3 marks)  
c. Differentiate between the energy obtained from biomass and fossil (3 marks)  
d. Discuss in detail "cellulose and its industrial applications" (12 marks)
5. a. What is a biomass? (1 mark)  
b. Briefly describe the structure and chemical composition of a biomass (12 marks)  
c. Enumerate the industrial applications of a biomass (4 marks)  
d. Mention methods for the conversion of biomass (3 marks)