



**ELIZADE UNIVERSITY,
ILARA-MOKIN,
ONDO STATE**

FACULTY: BASIC & APPLIED SCIENCES

DEPARTMENT: BIOLOGICAL SCIENCES

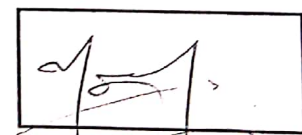
FIRST SEMESTER EXAMINATION

2016/2017 ACADEMIC SESSION

COURSE CODE: MCB 411

COURSE TITLE: INDUSTRIAL MICROBIOLOGY

DURATION: 2 1/2 HOURS


HOD's SIGNATURE

NAME:.....MAT. No:.....

INSTRUCTION

ANSWER ANY FOUR QUESTION.

ALL QUESTIONS CARRY EQUAL MARKS.

1. Mr Okafor was appointed the Manager of Elizade University Oyster Mushroom farm and Ethanol processing line. The manager has just recruited the services of a consultant to advise him on the kind of media needed, what will be the type of media suggested by the consultant and what will be the criteria for making such suggestions to the manager?
2. A fermentation expert is setting up a processing line to produce *Saccharomyces cerevisiae* in large quantity to sell for bread bakers. Initially, he used bubble column bioreactor but he later changed to stirred tank bioreactor for the production.
 - a. What will be the advantages of his now method over the last method
 - b. What will be the disadvantages of the new method over the initial method
 - c. Suggest other types of bioreactor that the yeast producer can use (give reasons for your opinion)
3. Microorganisms are used for industrial production of many materials
 - a. List two classes of microorganisms used for industrial production of materials
 - b. What are the growing and media requirements of one of the classes selected
 - c. List two potential products that can be produced by the microorganisms
4. What are biofuels
 - a. Ethanol is one of the important biofuel produced on the large scale, briefly describe (include diagrams) how ethanol is produced using a selected microorganism and a selected production process
 - b. Discuss how biofuel from fermentation process can serve as impetus to improving economic health of Nigeria.
5. Downstream processing is one of the important parts of a successful fermentation process, Describe the various steps involved in a typical downstream process. How will the processes to recover the following products from the broth
 - a. Ethanol
 - b. Protein
 - c. Yeast cells
6. Bioreactors are the heart of industrial microbiology. These bioreactors have different designs and construction characteristics.
 - a. What are the important design criteria for your choice bioreactor
 - b. What are the advantages and disadvantages of using the reactor
 - c. Sketch and label that your choice bioreactor