



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

**FACULTY: BASIC & APPLIED SCIENCES**

**DEPARTMENT: BIOLOGICAL SCIENCES**

**FIRST SEMESTER EXAMINATION**

**2016/2017 ACADEMIC SESSION**

**COURSE CODE: BTH 303**

**COURSE TITLE: INDUSTRIAL BIOTECHNOLOGY**

**DURATION: 2 1/2 HOURS**

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**HOD's SIGNATURE**

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

**INSTRUCTION**

**ANSWER FOUR QUESTIONS.**

**ALL QUESTIONS CARRY EQUAL MARKS.**

1. A fermentation process requires certain conditions for microorganisms to grow and produce intended products.
  - a. What are the classes of growth factors needed by the microorganism (give examples of the materials)
  - b. Explain in details the criteria used to select the media materials used in fermentation process
2. What are the examples of methods used in sterilizing air in preparation for fermentation
  - a. In a tabular form compare air sterilization with chemical sterilization
  - b. Sterilization is a very important step in a fermentation process, what are the two types and what is the characteristics of these sterilization process
  - c. What are the principles of air sterilization
3. Explain in details the processes involved in the production of citric acid through fermentation approach.
4. In biosynthesis processes, there are pathways used by microbes to metabolize sugars such as glucose. Sketch this pathway in details
5. (a) Write comprehensively on the production Ethanol  
(b) State the differences in the production of ethanol and vinegar

End of Question