

**COVENANT UNIVERSITY
NIGERIA**

*TUTORIAL KIT
OMEGA SEMESTER*

PROGRAMME: MICROBIOLOGY

COURSE: MCB 421

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MCB 421: INDUSTRIAL MICROBIOLOGY

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- 1a Write short notes on obsolescence in industrial microbiology
- b Discuss the application of microorganisms of industrial importance in any four fields of life
- 2a Enumerate the functions of an industrial microbiologist in a production factory
- b Define the term microbial biotechnology
- 3a Discuss methods of preservation of microbial cultures
- b Write short notes on the characteristics of microorganisms of industrial importance
- 4a Enumerate methods employed in the improvement of industrial microorganisms
- b Identify factors that must be considered in the choice for an industrial media
- 5a State and explain the use of various raw materials required in the production of Beer (An Alcoholic Beverage).
- b State concisely Brewing processing with particular emphasis on the role of the fermenting yeast strains.
- 6a List and explain the various control measures used to prevent contamination at various stages of brewing.
- b How does traditional method of Alcoholic beverage differ from their European counterparts?
- 7a Name and Explain the culture media used in Brewery for the enumeration and Isolation of microorganisms in the brewing industry.
- 8(a). Define the term Industrial Microbiology
- (b) Highlight the key functions of an industrial microbiologist in his organization
9. a. Outline preservation techniques classified as (i) metabolically active (b) metabolically inactive methods of preservation
- b. Write short note on steroid vitamin (e) Describe the production of baker's yeast
- 10a. Outline the advantages of immobilized enzyme
- b. Write short note on Lyophilization (b) Diagrammatically present basic steroid structure
- 11a. Enumerate ten (10) steroid transformation reactions (d) Define the term Patent
- b) Write short note on enzyme immobilization by adsorption
- c Outline the advantages of immobilized cells
- 12 (a) Write short note on culture preservation on agar slant
- (b) Effort by Professor John to patent his plant and animal species believed to be new strains of microbes failed after 5 years of labour. Attempt to educate this professor on the reasons for this failure and the way out to get the patent approved.
- 13a. Differentiate between industrial fermentation of tetracycline and steroid transformation
- b. Write short note on enzyme immobilization by covalent binding
14. Outline the disadvantages of immobilized cells
- 15a. State and explain the raw materials required for the production of Alcoholic beverages.
- (b).State stepwisely the various steps involved with brewery leading to the production of beer.
- (c).write and explain the major spoilage micro-organisms in beer.
- 16.write into details on the following African alcoholic beverages:
 - Pito.
 - Burukutu.
 - Oyokpo.
 - Kaffir beer.
 - Palm-wine.
17. Discuss the application of industrial microorganisms in:
 - i. Health care and medicine

- ii. Waste biotreatment
- iii. Bioremediation
- iv. Biopolymers production
- v. Food production

18a. Enumerate five fields of study in Microbiology and discuss how these fields relate to Industrial Microbiology.

b. Enumerate and discuss any 10 characteristics of industrial microorganisms

19a. Write short notes on the following sources of microorganisms for industrial use:

i. Literature review

ii. Different techniques for isolation de-novo

. 20a. Enumerate 10 methods for manipulating the genetic apparatus of industrial microorganisms for strain improvement.

b. List six factors that must be considered in making choice for raw materials used in compounding industrial media.