



**FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA**  
**DEPARTMENT OF MICROBIOLOGY**  
**FIRST SEMESTER EXAMINATION, 2018/2019 SESSION**  
**INDUSTRIAL MICROBIOLOGY (MCB 413) 3 UNITS**

**INSTRUCTIONS:** Answer **FIVE Questions** in All; **AT LEAST TWO** from each **Section**.

**.Time Allowed: 2 Hours**

**SECTION A**

- 1(a). Outline the procedures for the isolation of citric acid and amylase producing microorganisms
- 1(b). Describe how liquid nitrogen is used for the preservation of industrial microorganisms
  
- 2(a). What is Industrial Fermentation?
- 2(b). Discuss briefly the five major classification of Industrial Fermentation
  
3. Industrial Microbiology is a veritable option for economic diversification. Discuss

**SECTION B**

- 4(a). What is industrial microbiology?
- 4(b). Outline the different types of antifoams used in industrial fermentation.
  
5. Draw a well labeled diagram of an industrial fermentor.
- 6(a). Define patent in industrial microbiology.
- 6(b). Outline the principles for good practice of fermentor.
  
7. Itemize the steps in brewing beer and wine production.