

**NATIONAL OPEN UNIVERSITY OF NIGERIA**  
**Plot 91, Cadastral Zone, NnamdiAzikiwe Express**  
**way,Jabi-Abuja.**  
**FACULTY OF SCIENCE**  
**JANUARY 2018 EXAMINATION**

**PROGRAMME**

**COURSE CODE:            BIO 416**  
**COURSE TITLE:            INDUSTRIAL MICROBIOLOGY**  
**CREDIT UNIT:            3**  
**TIME ALLOWED:           2HOURS**  
**TOTAL MARKS:            70%**

**INSTRUCTION: ANSWER FOUR QUESTIONS IN ALL BUT QUESTION ONE IS COMPULSORY**

Q1a. Define the term Industrial Microbiology. **2marks**

b. List three characteristics of micro-organisms that are suitable to an industrial microbiologist. **3marks**

c. List four types of media used in microbiology **4marks**

d. List three methods used in isolating pure cultures of micro-organisms. **3marks**

e. list five basic requirements of all microbes used for media formulation. **5marks**

f. state five criteria for media formulation. **5marks**

**22MARKS**

Q2a. Explain the term Mutation. **2marks**

b. Briefly list the methods of strain selection in industrial microbiology. **3marks**

c. Explain method of strain improvements. **7marks**

**12MARKS**

Q3a. Define the term Recombinant DNA Technology **2marks**

b. list the technologies behind the production of a genetically engineered bacterium. **7marks**

**12MARKS**

c. Explain how hybridization takes place in some lower fungi? **3marks**

Q4a. What is Marshing ? **3marks**

b. Explain briefly the three widely contrasting Marshing processes. **7marks**

c. state the role of probiotics in the diet of man. **2marks**

**12MARKS**

Q5a. What are Antifoams? **2marks**

b. List four properties of Antifoams? **8marks**

c. list two factors that must be considered when constructing a fermenter. **2marks**

**12MARKS**

Q6a. State the role of malting in Alcoholic Beverages production. **5marks**

b. List the three processes involved in malting. **3marks.**

c. briefly explain the process of beer production. **4marks**

**12MARKS**

