



**ELIZADE UNIVERSITY,  
ILARA-MOKIN, NIGERIA**

**FACULTY: BASIC & APPLIED SCIENCES**

**DEPARTMENT: BIOLOGICAL SCIENCES**

**SECOND SEMESTER EXAMINATION**

**2017/2018 ACADEMIC SESSION**

**COURSE CODE: MCB 202**

**COURSE TITLE: GENERAL MICROBIOLOGY II**

**DURATION: 2 HOURS**

**HOD's SIGNATURE**

**NAME:.....**

**MAT.**

**No:.....**

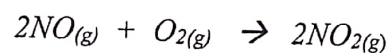
**INSTRUCTIONS: ANSWER ANY 2 QUESTIONS FROM EACH SECTION.**

SECTION A

1. Explain the meaning of microbial community and biofilm
2. (a) Draw and explain the life cycle of biofilm  
 (b) What are microbial mat?
3. (a) Discuss the binomial system of classifying microorganisms,  
 (b) Write short notes on the morphological characteristics and Polymerase Chain Reaction (PCR) of a named bacterium.

SECTION B

1. (a) With a schematic diagram, explain the Nitrogen cycle  
 (b) Outline the role of microorganisms in Nitrogen cycle  
 (c) Explain how Atmospheric Nitrogen is converted to a usable form for plant uptake.
2. (a) What are enzymes?  
 (b) Outline any FIVE (5) characteristics of enzymes.  
 (c) Explain the following:
  - (i) Competitive enzyme inhibitors
  - (ii) Non- competitive enzyme inhibitors
3. (a) Define standard free energy change  
 (b) Calculate the free energy change ( $\Delta G$ ) at  $17^\circ\text{C}$  for the following reaction



Where:

$$\Delta H = -120\text{kJ}$$

$$\Delta S = -150 \text{ JK}^{-1}$$

- (c) What is the spontaneity of the reaction above?