ELIZADE UNIVERSITY, ILARA-MOKIN, ONDO STATE, NIGERIA

FACULTY OF BASIC & APPLIED SCIENCES

DEPARTMENT OF BIOLOGICAL SCIENCES

SECOND SEMESTER EXAMINATION

2016/2017 ACADEMIC SESSION

COURSE CODE: MCB 202

COURSE TITLE: GENERAL MICROBIOLOGY II

DURATION: 2HOURS

HOD'S SIGNATURE

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

INSTRUCTIONS: ANSWER ALL QUESTIONS IN SECTION A AND TWO (2) QUESTIONS FROM SECTION B.

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SECTION A

1. a). Define the following:

i. Bioenergetics
ii. Biological thermodynamics
iii. Redox reaction
iv. Redox standard potential

b) Calculate the free energy change (ΔG) at 17°C for the following reaction

$$2NO_{(g)} + O_{2(g)} \rightarrow 2NO_{2(g)}$$

Where:

$\Delta H = -120kJ$

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

2. a) Mention the classes of enzymes that you know

b) With the aid of a suitable diagram, describe the mechanism of enzyme reaction under the following models

i. Lock and fit model

ii. Induced fit model

SECTION B

1. (a) What is binomial nomenclature of microorganisms?

(b) Differentiate between taxonomy and systematics

2. (a) List four (4) methods used in determination of microbial taxonomy and phylogeny.

(b) Explain in details any two (2) of the methods listed above.

3. (a) Define microbial biofilm and microbial mats.

(b) List the differences between microbial biofilm and microbial mats in a tabular form.