

BOWEN UNIVERSITY, IWO
DEPARTMENT OF BIOLOGICAL SCIENCES
2010/2011 SECOND SEMESTER EXAMINATION

MCB 303: MICROBIAL PHYSIOLOGY

Answer questions **one (Compulsory)** and one question each from sections **B** and **C** in separate booklets.

Time: 2 hrs 20 mins

SECTION A

1. (a) Describe how you will determine the effects of temperature and pH on microbial growth.
(b) Mention **three** other factors that may affect microbial growth. (30 Marks)

SECTION B

2. (a) What are enzymes?
(b) Discuss each of the following:
(i) Competitive inhibition
(ii) Non-competitive inhibition (20 Marks)
3. Write in detail on each of the following:
(a) Passive transport.
(b) Active transport.
(c) Facilitated transport. (20 Marks)

SECTION C

4. The continuous cycle of the use and release of nitrogen from the atmosphere, the soil and living organisms involves series of reactions under natural conditions. Discuss (20 Marks)
5. (a) Discuss the effect of nutrient on microbial growth.
(b) The population of bacteria increases from 10^{-2} to 10^{-7} in 5 hours
(i) What is the number of generations, n in time t .
(ii) What is the mean generation time, g ?
(iii) Calculate the mean growth constant, k . (20 Marks)