
CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

**SECOND YEAR EXAMINATION FOR THE AWARD OF DEGREE
OF BACHELOR OF SCIENCE IN BIOLOGY**

MICB 220: MICROBIAL ECOLOGY

STREAMS: BSC BIO

TIME: 2 HOURS

DAY/DATE: FRIDAY 14/12/2018

2.30 P.M - 4.30 P.M.

INSTRUCTIONS

- Answer ALL Questions in Section A and ONLY TWO Questions in Section B
- Do not write anything on the question paper

SECTION A: [30 MARKS] - ANSWER ALL THE QUESTIONS IN THIS SECTION

QUESTION ONE

- (a) Describe two physical factors that influence microbial growth. [4 Marks]
- (b) List two ways in which organisms are physically associated with each other. [2 Marks]
- (c) Explain how oxygen content is controlled in media. [3 Marks]
- (d) Differentiate active from passive method of dispersal and colonization of microbes in the ecosystem. [1 Mark]

QUESTION TWO

- (a) Explain two disadvantages of using direct microscopic counting in measuring microbial growth. [2 Marks]
- (b) Discuss two transformation processes through which organic and inorganic forms of sulfur is microbiologically metabolized in the soil. [4 Marks]
- (c) Explain three factors that affect microorganisms in stored water. [3 Marks]
- (d) Distinguish between mutualism and neutralism. [1 Mark]

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QUESTION THREE

- (a) Describe two types of asexual reproduction in microbes. [2 Marks]
- (b) Explain three roles of microbes in an ecosystem. [3 Mark]
- (c) Explain three roles of microbes in sewage treatment. [3 Marks]
- (d) Explain two adaptations of thermophiles to their environment. [2 Marks]

SECTION B: [40 MARKS] - ANSWER ONLY TWO QUESTIONS IN THIS SECTION

- 4. Using a diagram to illustrate, describe the role of microbes in nitrogen cycle. [20 Marks]

- 5. Discuss microorganisms under the following headings;
 - (a) Five major characteristics of microorganisms. [10 Marks]
 - (b) Five factor that determine succession of microorganism in an environment. [10 Marks]

- 6. Describe the four phases of a microbial growth curve observed when microbes are grown in a batch culture. [20 Marks]

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