

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS.

THIRD YEAR EXAMINATION FOR THE AWARD OF DEGREE
OF BACHELOR OF SCIENCE (GENERAL)

BOTA 335: ADVANCED MICRIBIOLOGY

STREAMS: B.Sc (BIO) Y3

TIME: 2 HOURS

DAY/DATE: WEDNESDAY 17/04/2019

11.30 A.M - 1.30 P.M.

INSTRUCTIONS:

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

SECTION A: ANSWER ALL QUESTIONS IN THIS SECTION

1. Explain five steps involved in biofilm formation. [5 Marks]
2. (a) Explain the role of vitamins and sterols in growth of microbes. [2 Marks]
(b) Differentiate between catabolic pathway and anabolic pathway. [2 Marks]
(c) State one survival mechanism of acidophiles to their acidic habitat. [1 Mark]
3. (a) Describe the events that occur at decline phase during bacterial growth. [3 Marks]
(b) Name two categories of bacteria classified on the basis of pH conditions. [2 Marks]
4. (a) Differentiate between homofermenters and heterofermenters that are used in lactic acid fermentation. [2 Marks]
(b) Describe three methods used in horizontal gene transfer in a bacterial cell. [3 Marks]
5. (a) Explain three effects of mycorrhizal fungi on their hosts. [3 Marks]
(b) Explain two roles of algae in the soil. [2 Marks]
6. (a) Describe three techniques involved in genetic engineering. [3 Marks]
(b) Explain two techniques used in determining potability of water. [2 Marks]

SECTION B: [40 MARKS]

7. Discuss stages involved in nitrogen cycle from ecological perspective. [20 Marks]
8. Describe the events that occurs during DNA replication in prokaryotes. [20 Marks]
9. (a) Discus five biotechnological potential of Halophiles (Halobacteria) which are commercial interest. [10 Marks]
- (b) Describe processes involved in waste water treatment. [10 Marks]

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