



RAJARATA UNIVERSITY OF SRI LANKA
FACULTY OF APPLIED SCIENCES
Bachelor of Science in Applied Sciences
First Year – Semester II Examination – January/February 2023

BIO 1203 – GENERAL MICROBIOLOGY

Time: Two (02) hours

Answer any FOUR (4) questions

1. a) Explain the phases in the microbial population growth curve of a batch culture system. (30 marks)
b) Discuss why obligate anaerobic bacteria are sensitive to oxygen. (30 marks)
c) Facultative anaerobes have a survival advantage over obligate anaerobes. Evaluate this statement. (40 marks)
2. Describe the key features and specific microbiological tests which could be used to differentiate *Escherichia*, *Bacillus*, and *Mycobacterium*. (100 marks)
3. a) Describe the mode of action that characterizes β lactam antibiotics? Why are these antibiotics generally more effective against Gram positive bacteria than against Gram negative bacteria? (40 marks)
b) Why is it important to determine the susceptibility of an infectious microorganism to a particular antibiotic? (30 marks)
c) State the steps in the Kirby –Bauer method of determining the antimicrobial effectiveness against specific pathogens. (30 Marks)

4. a) Compare symbiotic nitrogen fixation and rhizosphere associative nitrogen fixation using examples. **(30 marks)**
- b) Describe the importance of plant growth promoting rhizobacteria (PGPR) in organic crop production. **(30 marks)**
- c) Describe the functions of indicator microorganisms in the testing of drinking water quality. **(20 marks)**
- d) What general procedures are used to reduce microbial populations of drinking water supplies? **(20 marks)**
5. Write short notes on
- a) Microbial biofilms. **(50 marks)**
- b) Lytic and Lysogenic cycles of viral replication. **(50 marks)**

--- END---