



**RAJARATA UNIVERSITY OF SRI LANKA  
FACULTY OF APPLIED SCIENCES**

**B.Sc. (General) Degree in Applied Sciences  
Second Year Semester II Examination – November/December 2016**

**BIO 2205 - GENERAL MICROBIOLOGY**

**Time: Two (2) hours**

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**Answer four (4) questions only**

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1. Describe the key features could be used to differentiate the following genera of bacteria:  
*Bacillus*, *Escherichia* and *Mycobacterium*.
  
2. a) Atmospheric nitrogen fixation is found in representatives of various phyla of Bacteria and Archaea. Using appropriate examples discuss the characteristics of such organisms that would provide the conditions with this capability.  
  
b) Design a procedure that will enable you to specifically demonstrate the presence of *Clostridium* in the given soil.  
  
c) List the groups of the photoautotroph bacteria and write their role in elemental cycles.
  
3. a) Patient who must take broad spectrum antibiotics for a prolonged time often experience gastrointestinal problem and develop fungal infection. What might be responsible for these side effects?  
  
b) Why mycoplasma is unaffected by antibiotics that interfere with peptidoglycan synthesis?  
  
c) Assuming that you are going to start a factory to process fruits, list the possible methods that can be used for processing fruits.

- d) Filtration is an acceptable mean of pasteurization for some liquids. For a liquid of your choice, identify the advantages and disadvantages of a membrane filtration system over a heat pasteurization system.
4. "Microorganisms are considered as useful organisms to support many activities in the biotic and abiotic environments of the Earth, rather than pathogens." Critically evaluate this statement.
5. Write short notes on following:
- a) Actinomycetes
  - b) Probiotics
  - c) Mycorrhizae