



27

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

**B.Sc. (General) Degree in Applied Sciences
Third Year – Semester II Examination –February/March 2019**

MIB 3201 – INDUSTRIAL MICROBIOLOGY

Time: Two (02) hours

Answer FOUR (4) questions only.

1. a) Evaluate the potential of fungi as biofertilizers in sustainable agriculture practices.
(50 marks)
b) Discuss the microbial anaerobic digestion of biomass used in biogas production.
(50 marks)
2. As a microbiologist, describe the factors you should consider in manipulating up stream process and down stream process when designing a fermenter for alcohol production [consider yeast (*Saccharomyces cerevisiae*) as the starter culture].
(100 marks)
3. If you have been asked to develop a food waste and garden waste composting facility, what are the factors you should consider when manufacturing standard compost to be used in ecological farming.
(100 marks)
4. Briefly explain the methods, which can be applied to bioremediate heavy metal contaminated soil.
(100 marks)
5. a) Discuss the biosynthetic pathway of PHA in bacteria. Describe the role of enzymes involved in each catalytic step in your description. Use diagrams if necessary.
(50 marks)
b) Write a brief account of commercial scale production of PHA bioplastics.
(50 marks)

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