

UNIVERSITY OF RUHUNA

BACHELOR OF SCIENCE (SPECIAL) DEGREE LEVEL II (SEMESTER I) EXAMINATION
– JULY 2017

SUBJECT: BOTANY

COURSE UNIT: APPLIED MICROBIOLOGY (BOT 4042)

Time: Two (2) hours

Answer three questions only.

(1)

- (i) "Fermentation" is a word with several meanings for a microbiologist. List four (4) biological processes described as fermentation.
- (ii) Briefly explain properties that are required to be present in industrial strains of microorganisms.
- (iii) Discuss the factors to be considered when developing a growth medium for industrial fermentation.

(2)

- (i) Nature provides plenty of microbial resources for enzyme discovery. Briefly describe modern technological and bioinformatics applications used in microbial enzyme discovery.
- (ii) *Escherichia coli*, *Saccharomyces cerevisiae* and *Pichia pastoris* are extensively used in recombinant enzyme production. List properties of these microorganisms which make them suitable recombinant hosts for synthesizing recombinant enzymes for the industry.

(3)

- (i) Briefly explain the terms "biostimulation" and "bioaugmentation".
- (ii) Describe present bioremediation methods of contaminated soil and water using microorganisms.

(4) Write an essay on recent advances in microorganisms-based drug delivery systems.