



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

B.Sc. (Special) Degree in Applied Biology

Fourth Year Semester I Examination – September/October 2019

MIB 4207 – MICROBIAL GENETICS

Time: Two (02) hours

Answer All questions.

1. Discuss the currently accepted models of horizontal gene transfer in bacteria and their importance in development of antibiotic resistance mechanisms
(100 marks)
2. a) Describe briefly, the types of transposable elements in bacteria.
(40 marks)
- b) Write a brief description on the extra-chromosomal elements in Prokaryotic and Eukaryotic microorganisms and discuss their potential benefits.
(60 marks)
3. Write a brief essay on the currently accepted taxonomic classification of Archaea. In your essay, discuss the current gold-standard method for taxonomic classification of Archaea and the reasons why Archaeal classification is still debatable.
(100 marks)
4. Describe cell differentiation in microorganisms using the specific example of heterocyst development in cyanobacteria; including descriptions on morphological, biochemical changes that are taking place and the underlying genetic basis for the aforesaid changes.
(100 marks)

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