



RAJARATA UNIVERSITY OF SRI LANKA
FACULTY OF APPLIED SCIENCES, MIHINTALE.

B.Sc. (Special) Degree in Applied Biology
Fourth year – Semester II Examination – April/May 2015

MIB 4207 MICROBIAL GENETICS

Time: Two (2) hours

Answer all questions

Use labeled diagrams where appropriate

1. Write short notes on the following;

- a) replication mechanisms of linear plasmids (40 Marks)
- b) mechanisms of transposition (30 Marks)
- c) resolving Holliday junctions in homologous recombination. (30 Marks)

2. a) Describe the involvement of type IV pili in DNA uptake of Gram negative bacteria.

(30 Marks)

b) Differentiate *hfr* cells from *f*.

(30 Marks)

c) Explain how *hfr* can be used to map bacterial genomes

(40 Marks)

3. a) Comment on special characteristics of the yeast genome.

(30 Marks)

b) Describe genome-wide approaches used for yeast function analysis.

(30 Marks)

c) Comment on the importance of CEN, ARS and TEL regions.

(40 Marks)

4. a) Illustrate the molecular mechanism of attenuation in tryptophan operon. (40 Marks)

b) Explain mechanisms for control of gene expression at translational level and propose an experimental procedure to confirm that genes of the same operon are not translated with the same efficiency. (60 Marks)