



**RAJARATA UNIVERSITY OF SRI LANKA
FACULTY OF TECHNOLOGY**

**Bachelor of Biosystems Technology Honours in Bioprocess Technology
Third Year - Semester I - Special Repeat Examination - October/November 2024**

BPT 3201 – MOLECULAR MICROBIOLOGY (Theory Paper)

Index No:

Time: Two (02) hours

Instructions:

- The question paper consists of **four (04)** questions across **two (02)** pages.
 - Answer **ALL FOUR (04)** questions in English.
 - Use the provided answer books/sheets to answer the questions.
-

1. a) Define specialized transduction. (20 marks)
 - b) Justify the need for lysogeny. (30 marks)
 - c) Using labeled diagrams, illustrate the lytic lysogenic switch. (50 marks)
-
2. a) Explain the importance of two-component systems in bacteria. (50 marks)
 - b) Using labeled diagrams, illustrate the model two-component system in bacteria. (50 marks)

3. a) Compare conjugation and transformation as DNA exchange systems in bacteria.

(30 marks)

b) Justify the need for natural bacterial transformation.

(30 marks)

c) Using labeled diagrams, illustrate the difference between *hfr* and *f'*.

(40 marks)

4. Write short notes on the following phenomena.

a) *Agrobacterium* two-component system

b) Type IV secretion systems in bacteria

c) Bacterial addiction system against plasmid curing

d) Quorum sensing related functions in bacteria

(25 x 4 = 100 marks)

END