



RAJARATA UNIVERSITY OF SRI LANKA  
FACULTY OF APPLIED SCIENCES

B.Sc. (Special) Degree in Applied Biology  
Fourth Year – Semester I Examination –June/July2018

MIB3104-MOLECULAR MICROBIOLOGY

Time: One and a half (1½) hours

---

Answer **THREE (03)** questions only.

---

1. Write short notes on the following.

- a) Bacterial *avr* genes.
- b) Impact of PGPR on plant growth and defense.
- c) Use of plant growth promoters by bacterial pathogens.
- d) Regulation of *vir* region in *Agrobacterium tumefaciens*.

(4X25 Marks)

2. a) Describe a quorum sensing event of your choice.

(30 Marks)

b) Justify studies on quorum sensing.

(30 Marks)

c) Design a system that gets activated by heat and secretes a Bt  $\delta$  endo-toxin.

(40 Marks)

3.a) Explain the salient features of a “type 2 secretion system (T2SS)”.

(30 Marks)

b) Justify the need for trafficking proteins inside a prokaryotic cell.

(30 marks)

c) Illustrate the channel model of T4SS using labeled diagrams.

(40 Marks)

4. Giving examples, critically evaluate molecular circuits of bacterial chemotaxis.

(100 Marks)

----END----