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

B.Sc. (Special) Degree in Applied Biology  
Fourth year – Semester I Examination –October/November 2015

MIB 3104 MOLECULAR MICROBIOLOGY

Time: 1 ½ hours

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Answer any three questions  
Use labeled diagrams where appropriate

1. Write short notes on;

- a) AHL mediated quorum sensing
- b) regulation of two component systems
- c) *Agrobacterium tumefaciens* avr genes
- d) reasons for trafficking of proteins by cells

(4X25 Marks)

2. a) Appraise the EnvZ OmpR system of *E.coli*.

(30 Marks)

b) Justify the need for fratricide during sporulation.

(30 Marks)

c) Design a system that secretes an insecticidal protein at the stationary phase.

(40 Marks)

3. a) Describe mechanisms behind PGPR.

(30 Marks)

b) Analyze regulation of PGPR by microbial signals.

(30 marks)

c) Comment on systemic effects of PGPR on whole plant physiology and functioning.

(40 Marks)

4. Giving examples, critically evaluate the importance of *E.coli* chemotaxis system. (100 Marks)

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