

**FACULTY OF SCIENCE**  
**M. Sc. IV – Semester Examination, April / May 2014**

**Subject : Microbiology**  
**Paper – I: Molecular Biotechnology**

**Time : 3 Hours**

**Max. Marks: 80**

**Note : Answer all questions from Part - A and Part - B. Each question carries 4 marks in Part - A and 12 marks in Part - B.**

**PART – A (8 x 4 = 32 Marks)**  
**(Short Answer Type)**

- 1 Signal transduction
- 2 IPR
- 3 Incompatibility
- 4 RTPCR
- 5 Restriction mapping
- 6 Southern blot
- 7 RAPD
- 8 Gene chips

**PART – B (4 x 12 = 48 Marks)**  
**(Essay Answer Type)**

- 9 (a) What is sigma switch? Explain how it regulates sporulation in *Bacillus subtilis*.  
**OR**  
(b) Give an account of gene regulation in Eukaryotes along with a note on tissue specific regulation.
- 10 (a) Describe the mechanism of transposition.  
**OR**  
(b) Explain the approaches to primer design and add a note on the principle and importance of multiplex PCR.
- 11 (a) Describe the methods of detection of recombinant clones.  
**OR**  
(b) Describe the principle and process of hybridoma technology and its applications.
- 12 (a) What are micro arrays? Describe their types and applications.  
**OR**  
(b) Give approaches for DNA sequencing, sequence comparison and alignment methods.

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