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 régulation 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.