

**FACULTY OF SCIENCE**

**M. Sc. I – Semester (CBCS) Examination, December 2016**

**Subject : Microbiology**

**Paper – III : Research Methodology and Techniques**

**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 Explain the principle of colorimeter.
- 2 Define optical rotation and add note in its significance.
- 3 Write on the principle of chromatography.
- 4 Explain on the preparation of cell free extracts.
- 5 Explain the postulates of 't' test.
- 6 Write an  $\chi^2$  test analysis.
- 7 Explain about patent filing and its uses.
- 8 Write on the uses of spread sheets.

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

- 9 (a) Write on spectrophotometer layout, principle and applications.  
**OR**  
(b) Discuss the principle of electrophoresis and explain the methodology of SDS-PAGE.
- 10 (a) Explain the methodology involved in gel filtration. Add note on its significance.  
**OR**  
(b) What are radio isotopes? Write on the uses of  $^{32}\text{P}$ ,  $^{35}\text{S}$  and  $^{125}\text{I}$  in analysis of biological samples.
- 11 (a) Define population. Using a random sample of 100 explain on range, variation and frequency distribution of data.  
**OR**  
(b) Write on linear regression analysis and its significance.
- 12 (a) Explain the methods used in manuscript preparation to an editor.  
**OR**  
(b) Write on (i) Dos (ii) Word Processing (iii) Quality Assurance (iv) Quality control

\*\*\*\*\*