FACULTY OF SCIENCE
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.

(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.

(b) What are radio isotopes? Write on the uses of $^{32}$P, $^{35}$S and $^{125}$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.

(b) Write on linear regression analysis and its significance.

12. (a) Explain the methods used in manuscript preparation to an editor.

(b) Write on (i) Dos (ii) Word Processing (iii) Quality Assurance (iv) Quality control

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