Date:10-12-22

Registration number:

**ST. JOSEPH’S UNIVERSITY, BENGALURU-27**

**M.Sc. (MICROBIOLOGY) – I SEMESTER**

**SEMESTER EXAMINATION: OCTOBER 2022**

**(Examination conducted in December 2022)**

**MB 7421: MICROBIOLOGICAL TECHNIQUES**

**Time- 2 hours Max Marks-50**

**This question paper contains 2 printed page and four parts**

**I. Answer any Five of the following 5X3=15**

1. Write the equation that can calculate the pH value of a given buffer solution and explain the terms.
2. Explain the mechanism of antimicrobial action of X-rays.
3. List all the requirements used for horizontal gel electrophoresis.
4. State names of different filters used for filtering microbes.
5. Write the principle of size exclusion chromatography.
6. Expand SSCP. What is it used for?
7. What is Phospholipids fatty acid analysis?
8. **Answer any Two of the following 2X5=10**
9. Write a brief note on any one method of sample preparation for TEM.
10. Describe any one antiviral assay.
11. Explain the working of an autoclave.

**III. Answer any Two of the following 2X10=20**

1. Draw the light path of a dark field microscope. Explain its functioning and mention its advantages and disadvantages.
2. a. Write a note on Atomic force microscopy.

b. Give the principle and applications of GC-MS.

1. Give the principle of centrifugation. Write a note on preparative centrifugation, state appropriate examples.

**IV. Answer the following 1X5=5**

1. A scientist while observing a tissue finds few of the cells are expressing a protein A and other cells are not expressing it. She wants to study these cells individually. Explain how she can do that.