MASTER OF SCIENCE (MICROBIOLOGY) (CBCS - 2018 COURSE)
M.Sc. (Microbiology) Sem-II :SUMMER- 2022
SUBJECT : ANALYTICAL TECHNIQUES

Day : Saturday
Date : 16-07-2022

S-18591-2022

Time : 03:00 PM-06:00 PM
Max. Marks : 60

N.B.:

1) All questions are **COMPULSORY**.
2) Figures to the right indicate **FULL** marks.
3) Draw neat diagrams **WHEREVER** necessary.

Q.1 Explain the principle, working and applications of fluorescence spectroscopy. Add a note on comparison of fluorescence spectroscopy with UV-visible spectroscopy. **(15)**

OR

What is chromatography? Elaborate on different chromatographic systems and rational for selecting appropriate system. Describe Affinity chromatography.

Q.2 **a)** Explain with a suitable diagram, various types of rotors and their separation patterns. Comment on minimization of wall effect. **(08)**

b) Explain SDS-PAGE technique and justify its importance in study of proteins. **(07)**

Q.3 Answer **ANY THREE** of the following: **(15)**

a) Describe density gradient centrifugation technique in separation of biomolecules.

b) Write Beer and Lambert's law. If a chemical substance transmits 70% light through path of 2 cm and has molecular mass of 320. Calculate the molar extinction at concentration of 5 g/dm^3.

c) Enlist various instruments used for detecting radioactivity and describe any one with diagram.

d) Schematically demonstrate instrumentation for Agarose Gel electrophoresis.

e) What is a chromatogram? Draw and interpret a chromatogram showing complete separation.

Q.4 Write short note on **ANY THREE** of the following: **(15)**

a) Applications of electrophoresis technique

b) Ion exchange resins

c) Safe practices in handling centrifuge

d) Gas liquid chromatography

e) Autoradiography

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