

M.Sc.(FS) Semester - 1 (CBCS) Examination**Jan/Feb.-2022****Instrumental Techniques (CORE)****Time: 1:30 Hours****Marks: 42****Instructions:**

1. Figures to the right indicate marks.
 2. There are five questions in the question paper.
 3. Answer any three of the following questions.
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Q1 (A) Answer all questions in short : (04)

1. Explain the principle of Centrifugation.
2. Briefly explain the principle of Electrophoresis. Mention its Forensic Applications.

Q1 (B) Answer any two questions out of three : (10)

1. Define Electrophoresis. Briefly explain the types of Electrophoresis.
2. Write a brief note on the different types of Centrifugation.
3. Write a brief note on the Factors affecting Electrophoresis.

Q2 (A) Answer all questions in short : (04)

1. Who first developed the technique of Chromatography ?
2. Mention the principle of Size Exclusion Ion Exchange Chromatography.

Q2 (B) Answer any two questions out of three : (10)

1. Explain briefly about the instrumentation and working of Gas Chromatography.
2. Explain briefly Planar Chromatography. Mention its types in detail.
3. Define Chromatography and mention its principle. Briefly explain its classification.

Q3 (A) Answer all questions in short : (04)

1. Write a note on the principle of X-Ray Spectroscopy. Mention its types.
2. Define Electromagnetic Spectrum. Mention the EM Spectrum range of U.V., Visible and IR radiations.

Q3 (B) Answer any two questions out of three : (10)

1. Define Electromagnetic Radiations. Briefly explain about its properties.
2. Define Spectroscopy. Write a note on the types of Spectroscopy. Mention its Forensic Application.
3. Write a note on the working and principle of different types of IR Spectroscopy.

Q4 (A) Answer all questions in short : (04)

1. Define the terms : Magnification and Resolution.
2. Write a note on Micrometry.

Q4 (B) Answer any two questions out of three : (10)

1. Mention the principle of Electron Microscope. Differentiate between SEM and TEM.
2. Write a note on Stereo microscope. Mention its forensic application.
3. Define Microscopy. Explain the different types of microscopy.

Q5 (A) Answer all questions in short : (04)

1. Write the working principle of SEM- EDX.
2. Write the basic principle of Gas Chromatography.

Q5 (B) Answer any two questions out of three : (10)

1. Mention the components of LCMS and explain its working.
2. Write a note on the working of ICP - MS. Mention its forensic application
3. Write a note on the working principle and instrumentation of Atomic Absorption Spectroscopy. Mention its Forensic application.
