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24-FS-21

**M.Sc. II SEMESTER [MAIN/ATKT] EXAMINATION
JUNE - JULY 2024**

FORENSIC SCIENCE

Paper - I

[Instrumental Methods - Chemical]

[Max. Marks : 75]

[Time : 3:00 Hrs.]

[Min. Marks : 26]

Note : Candidate should write his/her Roll Number at the prescribed space on the question paper.
Student should not write anything on question paper.
Attempt five questions. Each question carries an internal choice.
Each question carries **15 marks**.

Q. 1 Define the Distillation. Discuss principle and instrumentation of fractional distillation. (15 Marks)

OR

- a) Discuss the sample treatment technique in terms of centrifugation, filtration, evaporation and crystallization. (12 Marks)
- b) Explain solid phase micro extraction. (03 Marks)

Q. 2 Give the basic principle of Microscope. Discuss the structure and working of comparison microscopy. Give its forensic applications. (15 Marks)

OR

Write notes on - (15 Marks)

- i) Compound Microscope.
- ii) Scanning Electron Microscopy.

Q. 3 What is Chromatography ? Discuss principle of paper chromatography with their different types. (15 Marks)

OR

Write notes on **any two** - (15 Marks)

- i) Exclusion (permeation) chromatography.
- ii) Affinity chromatography.
- iii) Basics of Chromatogram.

P.T.O.

Q. 4 Explain - (15 Marks)

- i) Pulse field gel electrophoresis.
- ii) Agarose gel electrophoresis.

OR

Write notes on - (15 Marks)

- i) Forensic applications of electrophoresis.
- ii) Factors affecting electrophoresis.

Q. 5 Discuss the following Ion production techniques in Mass Spectrometry- (15 Marks)

- i) Chemical Ionization (CI)
- ii) Field Desorption. (FD)
- iii) Fast Atom Bombardment (FAB).

OR

Write notes on **any two** - (15 Marks)

- i) Nitrogen Rule.
- ii) Metastable peaks.
- iii) McLafferty rearrangement.

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