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MEVE–018

M. SC. (ENVIRONMENTAL SCIENCE) (MSCENV)

Term-End Examination

June, 2025

MEVE-018 : INSTRUMENTATION TECHNIQUES FOR ENVIRONMENTAL MONITORING

Time : 3 Hours *Maximum Marks : 100*

Note : *Answer any* ***ten*** *questions. Each question carries 10 marks.*

1. What are the different methods employed in water sampling ? Explain.

2. What are the good laboratory practices ? Explain.

3. What is ion exchange resin ? Describe its applications.

4. What are hybrid nanopores ? What advantages do these have over other nanopore sequencing methods ?
5. Write the principle of TLC. Explain its applications.
6. Differentiate between the following with suitable examples :
   (a) Fluorescence and Phosphorescence
   (b) SEM and TEM
7. Define the following and write *one* application of each :
   (a) Cytophotometry
   (b) Immunoassay
   (c) Restriction Endonuclease
   (d) Biosensor
8. Describe various environmental applications of scattering and diffraction.
9. Write short notes on the following :
   (a) Soil sampling
   (b) Air sampling

10. What are the main components of Flame Atomic Absorption Spectrometer ? Explain their functions.

11. Name and describe the *four* steps of Gram staining.

12. What are microarrays ? Write their applications.

13. Describe various detectors used in Gas Liquid Chromatography.

14. Discuss briefly the microarray process for cDNA microarrays.

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