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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*

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

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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.

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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

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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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