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MEVE-018

M. Sc. (ENVIRONMENTAL SCIENCE)

(MSCENV)

Term-End Examination

June, 2024

MEVE-018 : INSTRUMENTATION TECHNIQUES FOR ENVIRONMENTAL MONITORING

Time : 3 Hours *Maximum Marks : 100*

Note **:** (*i*) *Answer any* ***ten*** *questions.*

(*ii*) *Each question carries equal marks.*

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1. What are different methods employed in air sampling ? Explain.

2. Define Chromatography. How is paper chromatography different from thin layer chromatography ? Explain.

3. Explain the following :

   (a) Ion exchange resin

   (b) Principle of High Performance Liquid Chromatography (HPLC)

4. What are monochromators ? Describe the functioning of grating monocromator.

5. Explain the origin of flame atomic absorption spectrum. What information can be obtained from the spectrum ?
6. Differentiate between the following :
   (i) Scanning Electron Microscope (SEM) and Transmission Electron Technique (TEM)
   (ii) Descending and Ascending chromatography
7. What are the four steps of Gram staining ? Explain.
8. What is the working principle of 2-D gel electrophoresis ? Explain.
9. Describe the stepts involved in PCR. What are the advantage of q-PCR over other methods ?
10. Define biosensor. Explain its working principle with suitable application.
11. What are microarrays ? Explain microarray process for c-DNA microarrays.
12. What are peptide nano electrodes ? Explain its working principle.
13. Write short notes on the following :
   (i) Radio Imuuno Assays
   (ii) Sandwich Immuno Assay
14. What is Raman shift ? Explain mutual exclusion principle for deciding IR and Raman activities.