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MEVE-018

**MASTER OF SCIENCE
(ENVIRONMENTAL SCIENCE)
(MSCENV)**

**Term-End Examination
June, 2022**

**MEVE-018 : INSTRUMENTATION TECHNIQUES
FOR ENVIRONMENTAL MONITORING**

Time : 3 Hours

Maximum Marks : 100

Note : Answer any *ten* questions. All questions carry equal marks.

1. How does paper chromatography work ?
Explain its applications. 10

2. Write short notes on the following : 5×2=10
 - (a) Good laboratory practices
 - (b) Concept of time and frequency in sampling

3. Explain the following with suitable examples :
 - (a) Biosensors 5 + 5
 - (b) Polymerase chain reaction

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4. Explain various applications of Gas Chromatography. 10
5. Describe the principle and working of phase contrast microscope. 10
6. Differentiate between SEM and TEM technique. Explain their applications. 10
7. Describe the applications of capillary electrophoresis in analysis of environmental pollutants. 10
8. Explain the working mechanism of enzyme immunoassays. 10
9. What are the main technologies used in micro-arrays ? 10
10. Describe the steps involved in PCR technique. Explain its applications. 10
11. Describe the working mechanism of TLC. Explain its applications. 10

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12. Describe various methods of water sampling. 10

13. Explain the following : $5 \times 2 = 10$

(a) DNA sequencing

(b) Hybrid nanopores

14. What are nanotweezers ? What are their applications ? 10