Roll No. : .....

Total No. of Questions : **16**] [Total No. of Printed Pages : **3**

SEME–209

M.Sc. (IInd Semester) Examination, 2022

ENVIRONMENTAL SCIENCE

Paper – FS–ENV–201

(Environmental Monitoring)

Time : 1½ Hours] [*Maximum Marks : **40***

Note :– The Question paper contains three Sections.

Section–A **(Marks : 1 × 10 = 10)**

Note :– Answer all the *ten* questions (Answer limit **50** words each). Each question carries **1** mark.

Section–B **(Marks : 3 × 5 = 15)**

Note :– Answer any *five* questions by selecting at least *one* question from each Unit (Answer limit **200** words each). Each question carries **3** marks.

Section–C **(Marks : 5 × 3 = 15)**

Note :– Answer any *three* questions by selecting *one* question from each Unit (Answer limit **500** words each). Each question carries **5** marks.

Section–A

1. (i) Which instrument is used to analyse cations and anions in water sample ?

   (ii) Define Chromatography.

(iii) What is the purpose of colourimetry ?

(iv) Define composite sampling.

(v) What is the most common method to detect pathogen contamination in drinking water ?

(vi) Define environmental modeling.

(vii) Differentiate between geometric and harmonic means.

(viii) What is Regression ?

(ix) Define Plume.

(x) Define Lapse rate.

Section–B

Unit–I

2. Discuss the merits of titrimetry and gravimetry methods.

3. Describe the electromagnetic spectrum.

4. What is an absorption and emission spectrum ?

Unit–II

5. List out common methods for organic and inorganic environmental pollutants analysis.

6. Explain two methods for monitoring of pollutants in air.

7. Name the instrument used to monitor radiation pollution in environment. How can we protect this pollution ?

Unit–III

8. What do you understand by primary and secondary data ?

9. Explain about the level of significance of statistical test.

10. What is correlation analysis ? Explain with suitable examples.

Section–C

Unit–I

11. Explain the principles of Gas chromatography and high performance liquid chromatography. What substances can be analyzed by them ?

12. How can you perform the analysis of an XRD of a mineral/substance give to you ? Explain with the sample of your choice.

Unit–II

13. Describe in detail the different methods of sampling in a field.

14. Suggest some methods for microbiological analysis from water samples.

Unit–III

15. Write in detail about interspecific competition (Lotka-Volterra).

16. Describe the point and non-point source of air pollution with emphasis on Gaussian plume model indicating plume behaviour.