

Roll No. :

Total No. of Questions : 16]

[Total No. of Printed Pages : 3

SENV-112

M.Sc. (Ist Semester) Examination, 2021

ENVIRONMENTAL SCIENCE

Paper - ES-103

(Environmental Chemistry)

Time : 1½ Hours]

[Maximum Marks : 40

Section-A

(Marks : 1 × 10 = 10)

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

Section-B

(Marks : 3 × 5 = 15)

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

Section-C

(Marks : 5 × 3 = 15)

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

Section-A

1 each

1. Attempt all questions :

- (i) Define Stoichiometry.
- (ii) Write definition of acid-base reaction with example.
- (iii) What is Radionucleoid ?

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- (iv) Give examples of historic photochemical smog episodes.
- (v) Write formula of PAN.
- (vi) Write examples of organic particulate matter present in polluted air.
- (vii) Define COD.
- (viii) Write full forms of CBOD and NBOD.
- (ix) Define Filtration.
- (x) What should be the ideal ratio of NPK in Soil ?

Section-B

3 each

Unit-I

- 2. What is Gibb's Energy ? Write short note.
- 3. Write any *two* differences between saturated and unsaturated hydrocarbons.
- 4. Define k_{sp} .

Unit-II

- 5. Draw flow-chart of classification of elements of air.
- 6. Write note on chemical processes for formation of inorganic particulate matter in air.
- 7. Discuss the chemistry of air pollutants.

Unit-III

- 8. Write basic principle of determining dissolved oxygen in water.
- 9. What do you mean by Coagulation ?
- 10. Write *three* differences in COD and BOD.

Section-C

5 each

Unit-I

- 11. Explain the solubility of gases in water with suitable example.

Or

- 12. Discuss the saturated and unsaturated hydrocarbons with examples.

Unit-II

13. Discuss in detail about particles, ions and radicals in the atmosphere.

Or

14. Write short notes on the following :

- (a) Oxygen and Ozone Chemistry
- (b) Photochemical Smog

Unit-III

15. Define Soil. What are the organic and inorganic component of soil. Explain their role in fertility of soils.

Or

16. Write notes on the following :

- (a) Redox potential
- (b) Sedimentation