647510 **Msc2CheC0410** **Seat No :_____**

M.Sc.(Chem.) Semester - 2 (*CBCS*) Examination
April/May-2023 (OLD COURSE)
ANALYTICAL CHEMISTRY(CORE)

Time: 2:30 Hours **Marks: 70**

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate marks.

Q.1 Answer the following questions. (Any Seven) **(14)**

1. What is Hydrosphere?

2. Briefly explain about dissolved oxygen (DO).

3. Define accuracy & Precision?

4. Give equation for corelation coefficient r^2, which value is called ideal r^2?

5. Define variance.

6. Explain Lithosphere in brief.

7. Enlist method validation criteria

8. Give any 4 examples which are based on design to degrade concept.

9. What is sonochemistry?

10. Define green chemistry.

Q.2 Answer the following questions. (Any Two) **(14)**

1. Explain this concept of green chemistry with example: (i) safer solvents (ii) catalyst

2. Explain chemical oxygen demand (COD) in detail with figure and experimental process.

3. If following data were obtained in Linearity studies on UV-Viz spectrophotometer, calculate weather data will pass or fail?

(Limit $R^2 = 0.9999 \pm 0.0005$)

Conc. (ppm)	1	2	3	4	5	6	7
Area	4.10	6.00	7.89	9.88	12.11	14.00	16.34

Q.3 Answer the following questions. **(14)**

1. Distinguish between following pairs

(I) Limit of detection & Limit of quantification

(II) Robustness & Ruggedness

2. Discuss various segments of atmosphere in detail with figure.

OR

Q.3 Answer the following questions.

1. Give an account on particles, ions and radicals in environment.
2. Elucidate organic and inorganic particulate matter.
3. Discuss classification of water pollutants with example.

Q.4 Answer the Following questions. **(14)**

A. Answer the following questions. (Any Two)

1. Discuss various method for analysis of SOx in air.
2. Explain the chem luminance method for analysis of NOx in air
3. Write twelve green principles and state characteristics of ideal green synthesis.

B. Answer the following questions. (Any One)

1. Explain detection of chloride and iron in water.
2. Discuss estimation of acidity and alkalinity of water sample in detail.

Q.5 Answer the following questions. (Any Two) **(14)**

1. Define standard deviation (SD) and Calculate SD for following:
   6.1, 5.9, 5.0, 6.7, 5.9, 6.5
2. Name the various non-conventional green approach for synthesis, discuss any one in detail.
3. Discuss estimation of sodium from soli sample by flame photometry.
4. Explain El Nino and La Nina phenomenon

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