

**PARUL UNIVERSITY**  
**FACULTY OF ENGINEERING & TECHNOLOGY**  
**B.Tech. Summer 2022-23 Examination**

**Semester: 4**  
**Subject Code: 203115251**  
**Subject Name: Environmental Chemistry-I**

**Date: 20/03/2023**  
**Time: 2:00pm to 4:30pm**  
**Total Marks: 60**

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**Instructions:**

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

**Q.1 Objective Type Questions - ( Fill in the blanks, one word answer, MCQ-not more than Five in case (15) of MCQ) (All are compulsory) (Each of one mark)**

1. What is the pH of Acid Rain?
2. \_\_\_\_\_ is a chemical agent that "donates" an electron to an electron recipient.
3. Full form of COD is \_\_\_\_\_.
4. Industrial wastewater is also known as \_\_\_\_\_.
5. \_\_\_\_\_ is defined as a cloudy appearance of water caused by small particles suspended therein.
6. Which of the following separation techniques is dependent on the difference in volatility?
  - a) Distillation
  - b) Crystallisation
  - c) Magnetic separation
  - d) Fractional crystallization
7. Select the inappropriate statement regarding quantitative analysis
  - a) It helps in determining the outcome of the product
  - b) It helps in determining the impurities in the sample
  - c) It fails to indicate the presence of lead in some compound
  - d) It could identify the amounts of dosage present in the drug
8. The process by which a representative fraction is acquired from a material of interest is termed as...
  - a) Titration
  - b) Calibration
  - c) Sampling
  - d) None of these
9. Systematic errors can be eliminated by.....
  - a) Exercising care
  - b) By calibration
  - c) By the proper use of standards, blanks, and reference materials.
  - d) All of these
10. For the purification, isolation and separation of organic compounds, the latest technique followed is:
  - a) Chromatography
  - b) Steam distillation
  - c) Fractional crystallization
  - d) Sublimation
11. Analyses in which substances are identified or classified on the basis of their chemical or physical properties called as
12. Analytical technique that uses a precipitation reaction to separate the ions in a solution is Called \_\_\_\_\_
13. Give one example of the primary standard solution.

14. The state of getting **dispersed** or spread is called \_\_\_\_\_

15. \_\_\_\_\_ can be expressed in terms of absolute error and relative error.

**Q.2** Answer the following questions. (Attempt any three) **(15)**

A) Explain in detail about the calibration of weighing balance.

B) Explain procedure of performing TDS in Laboratory.

C) Explain precautions to be taken while using pH meter.

D) What do you understand by Redox reaction? Explain with two examples.

**Q.3** A) What is gravimetric analysis? What are the applications of gravimetric analysis? **(07)**

B) Enlist various advanced techniques of water purification. Explain any one in detail with diagram. **(08)**

**OR**

B) Explain the Primary & Secondary standard solution. **(08)**

**Q.4** A) Write a Short note on Optical Methods of Analysis. **(07)**

**OR**

A) Explain step-by-step procedure of performing COD in Laboratory. **(07)**

B) Define Normality, Molality, Molarity & Valency. **(08)**