

M.Sc.(Chem.) Semester - 2 (CBCS) Examination**August/September -2020 [OLD COURSE]****ANALYTICAL CHEMISTRY (CORE)****Time: 2:00 Hours****Marks: 56****Instructions:**

1. Figure to the right indicate marks.
2. There are five questions in the question paper.
3. Answer any four of the following questions.

Q1 (A) Answer any seven out of following ten questions**14 Marks**

- 1 Write the equation for (i) Standard deviation (SD) and (ii) Relative standard deviation (%RSD) 2
- 2 What are Phase Transfer Catalysts (PCT)? Give suitable example. 2
- 3 Briefly Explain (i) Biological Oxygen Demand (BOD) and (ii) Chemical Oxygen Demand (COD) 2
- 4 Give the classification of water pollutants with example. 2
- 5 Discuss the estimation of total alkalinity of water sample. 2
- 6 Enlist the tests which are necessary to understand the physical condition and overall health of soil. 2
- 7 Define the term Green chemistry. 2
- 8 Briefly explain e-factor and give its equation. 2
- 9 Explain the term Limit of Detection (LOD) 2
- 10 Define Precision and enlist passing criteria for precision studies in Analytical Method Validation. 2

Q2 (A) Answer any two out of following three questions**14 Marks**

- 1 Discuss the concept of Atom economy with suitable example 7
- 2 Give an account of student -t test with suitable example. 7
- 3 Discuss the importance of Ozone layer and factors behind depletion of Ozone layer. 7

Q3 (A) Answer the following questions**14 Marks**

- 1 Find the value of co-relation coefficient for following observations. 5

Set	1	2	3	4	5
Concentration (ppm)	2.5	5.0	7.5	10.0	12.5
Observation	50	97	162	208	242

- 2 Write a detailed note on Asian brown cloud 5
- 3 Give the twelve principles of Green Chemistry. 4

OR**Q3 (B) Answer the following questions****14 Marks**

- 1 Write a note on El Nino and La Nina phenomenon. 7
- 2 Discuss adverse effects of air pollution on human, animals and nature. 7

Q4 (A) Answer any two out of following three questions**14 Marks**

- 1 Describe the chemistry of photochemical smog with relevant equation. 7
- 2 Discuss the instrumental method for estimation of Na and K in soil sample. 7
- 3 Give an account of ruggedness studies and enlist passing criteria for ruggedness studies in Analytical Method Validation of HPLC. 7

Q5 (A) Answer any two out of following four questions**14 Marks**

- 1 Give significance and determination of COD in water sample with chemical reactions involve in the process. 7
- 2 Discuss method for estimation of total nitrogen content in soil sample. 7
- 3 Give introduction of microwave assisted reactions and discuss merits and demerits of it. 7
- 4 What is analytical method validation? Discuss the significance of analytical method validation. 7
