

M.Sc.(Chem.) Semester - 2 (CBCS) Examination
May/June-2021 (OLD COURSE)
ANALYTICAL CHEMISTRY(CORE)

Time: 1:30 Hours

Marks: 42

Instructions:

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

Que-1(A) **Answer The Following Questions.** (04)

- A. Briefly explain the following terms: (a) LOD (b) LOQ
- B. Enlist advantages of microwave assisted reactions

Que-1(B) **Answer The Following Questions. (Any Two Out of Three)** (10)

- A. Discuss EL-Nino and LA-Nina Phenomena in detail.
- B. What is atom economy? Explain atom economy with suitable examples.
- C. Calculate mean and standard deviation for following five replicate observations.

Set	1	2	3	4	5
Observation	65,270	66,090	65,656	66,125	64,998

Que-2(A) **Answer The Following Questions.** (04)

- A. Explain significance of ozone layer
- B. What are supercritical fluids?

Que-2(B) **Answer The Following Questions. (Any Two Out of Three)** (10)

- A. Enlist twelve principals of green chemistry and discuss any one in detail.
- B. Define error and explain classification of errors with example.
- C. Briefly explain limit of Detection (LOD) and limit of Quantification (LOQ) with equation.

Que-3(A) **Answer The Following Questions.** (04)

- A. How pesticides can be detoxified in the soil?
- B. Explain robustness of the analytical method

Que-3(B) **Answer The Following Questions. (Any Two Out of Three)** (10)

- A. What is ionic liquid? Give an example of ionic liquid mediated reaction.
- B. Enlist analytical method validation parameters and explain any one in detail.
- C. Calculate % Relative Standard deviation (%RSD) for area of following set of HPLC system suitability data:

SN	Area	R.T.
1	24,128	6.24
2	24,254	6.27
3	24,400	6.24
4	25,420	6.25
5	26,912	6.27

- Que-4(A) **Answer The Following Questions.** (04)
- A. Give brief account of air pollution and enlist sources of air pollution
 - B. What is chemical oxygen demand (COD) and biological oxygen demand (BOD)?
- Que-4(B) **Answer The Following Questions. (Any Two Out of Three)** (10)
- A. Explain student's *t*-test with suitable example.
 - B. Give an account of Asian brown cloud.
 - C. Give the introduction and physical properties of air pollutants like particles like particles, ions and free radicals.
- Que-5(A) **Answer The Following Questions.** (04)
- A. Give classification of pollution and pollutants in environment.
 - B. Explain green reagents with suitable examples
- Que-5(B) **Answer The Following Questions. (Any Two Out of Four)** (10)
- A. Differentiate between microwave and conventional heating method.
 - B. Explain various methods to estimate fluoride present in water.
 - C. Give an account of quality parameters of water.
