

M.Sc.(Chem.) Semester - 2 (CBCS) Examination
March/April – 2026 (As Per Syllabus Year-2018)
Analytical Chemistry(CORE)

Time: 2:30 Hours

Marks:70

Instructions:

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

Q.1 (A) Answer the following questions (04)

- (1) Define accuracy and precision and draw its symbolic representation.

Q.1 (B) Answer any two questions out of three (10)

- (1) Calculate % Relative Standard Deviation for following observations
 i) 10.5, ii) 12.8, iii) 11.0, iv) 11.1, v) 12.5
 (2) Define Error and explain types of errors with suitable example.
 (3) Calculate the variance of each sample and determine the F-value.
 Sample A: 8.2, 8.4, 8.3, 8.5, 8.6
 Sample B: 7.9, 8.1, 8.0, 8.2, 8.3

Q.2 (A) Answer the following questions (04)

- (1) Explain dissolution studies and state factor affecting dissolution studies.

Q.2 (B) Answer any two questions out of three (10)

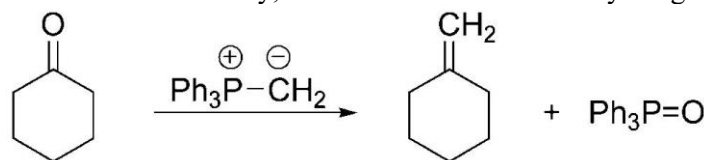
- (1) Give the principle, reaction and introduction of Karl Fischer titration
 (2) Define density, how will you determine tap density of given sample? Which factors affects the bulk and tap density of powdered sample?
 (3) Explain process to determine of %LOD of given sample.

Q.3 (A) Answer the following questions (04)

- (1) Write twelve green principles.

Q.3 (B) Answer any two questions out of three (10)

- (1) What are ionic liquids? Give its introduction and examples.
 (2) Explain following concepts of green chemistry with example.
 (i) Design to degrade (ii) Design Safer chemicals
 (3) Define the term atom economy, Calculate the atom economy for given reaction.



Q.4 (A) Answer the following questions (04)

- (1) Write the full forms of given abbreviations: a) WIPO, b) UPOV
 (2) State classes of works for which copyright protections are obtained.

Q.4 (B) Answer any two questions out of three (10)

- (1) What is Paris Convention? State its principal features and advantages of joining the Paris Convention.
 (2) Define Invention, what is not an "Invention" according to Section 3 of the Patent Act, 1970
 (3) What is Geographical Indication? Give three registered examples of from Gujarat and three from rest of the country.

Q.5 (A) Answer the following questions (04)

- (1) Define *in-vitro* and *in-vivo* studies.

Q.5 (B) Answer any two questions out of three (10)

- (1) Write a note on Glucose estimation by GOD-POD method.
 (2) Write principle, methodology, merits and demerits of Haemoglobin estimation by Cyanmethemoglobin Method.
 (3) Give the principle and quantitative estimation method for Urine Glucose
