

Seat No.:

No. of Printed Pages: 01



A Charutar Vidya Mandal's Institution
V.P. & R.P.T.P. SCIENCE COLLEGE
(AUTONOMOUS) (Grant-in-Aid)
Affiliated to Sardar Patel University
VALLABH VIDYANAGAR-388120



Bachelor of Science (Semester IV) Internal Theory Examination March- 2026

US04MAICV02: INTRODUCTION TO ANALYTICAL CHEMISTRY

Date: 09/03/2026, Monday

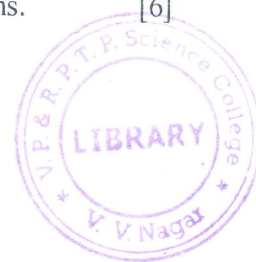
Time: 02:45 PM to 04:15 PM

Total Marks: 30

Note: Figures to the right indicate full marks.

Q-1 Write the most appropriate answer from the following multiple-choice questions. [6]

1. How many significant figures are present in 0.371020 number?
(a) 2 (c) 6
(b) 4 (d) 8
2. Complexometric titrations are useful for the determination of:
(a) Organic compounds (c) Gases
(b) Metal ions (d) Acids
3. Iodometric titrations are classified as:
(a) Acid-base titrations (c) Precipitation titrations
(b) Complexometric titrations (d) Redox titrations
4. Which indicator is used in Fajan's method?
(a) Potassium chromate (K_2CrO_4) (c) Fluorescein
(b) Ferric chloride ($FeCl_3$) (d) Phenolphthalein
5. Chromatography is a technique used to:
(a) Measure temperature (c) Determine density
(b) Separate components of a mixture (d) Measure pH
6. A compound travels 2.5 cm while the solvent front travels 5.0 cm in TLC. The R_f value is:
(a) 0.25 (c) 0.75
(b) 0.50 (d) 1.00



- Q-2 Explain the various methods for minimizing errors. [6]
OR
- Q-2 Discuss in detail the classification of errors. [6]
- Q-3 Discuss the role of starch in titrations involving iodine. [6]
OR
- Q-3 Explain the masking and demasking methods used in EDTA titrations. [6]
- Q-4 Differentiate between lyophobic colloid and lyophilic colloid. [6]
OR
- Q-4 Discuss Mohr's method in detail. [6]
- Q-5 Write a note on gas chromatography (GC). [6]
OR
- Q-5 Write a note on paper chromatography. [6]

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Supervisor sign.

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Bachelor of Science (Semester IV) Quiz - 2026

US04MAICV02: INTRODUCTION TO ANALYTICAL CHEMISTRY

Date: 09/03/2026, Monday

Time: 20 minutes

Total Marks: 15

Q-1 Fill in the blanks with appropriate answer given in the bracket. [08]

1. Random errors is also known as errors. (determinate / indeterminate)
2. refers to how close a measurement is to the true or accepted value. (Precision / Accuracy)
3. In redox reactions, and take place simultaneously. (oxidation, reduction / acid, base)
4. In complexometric titrations, EDTA forms a with metal ions. (1:1 complex / 2:1 complex)
5. In Mohr's method, acts as an indicator for chloride titration. (Fe^{3+} / CrO_4^{2-})
6. Gravimetric analysis is a method of chemical analysis. (qualitative / quantitative)
7. The carries the solute in chromatography. (stationary phase / mobile phase)
8. High-Performance Liquid Chromatography (HPLC) is a technique used to and compounds in a chemical mixture. (separate, analyze / heat, evaporate)

Q-2 Whether the following statement is true or false. Write your answer in the box. [07]

1. The difference between a theoretical value and a practical value is called Error. []
2. In complexometric titrations, Eriochrome Black T (EBT) indicator is commonly used for the determination of nitrogen and helium ions. []
3. The endpoint in iodometric titrations is often detected using starch as an indicator. []
4. Mohr's method is a titration technique that determines the amount of magnesium ions in a solution. []
5. Lyophilic colloids have a weak affinity for the dispersion medium. []
6. High-Performance Liquid Chromatography (HPLC) separates compounds based on their interaction with stationary and mobile phases. []
7. The R_f value is calculated as the ratio of the distance travelled by the solute to the distance travelled by the solvent. []

