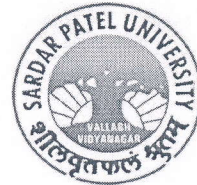


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Bachelor of Science (Semester 5) Internal Examination - 2025
US05MACHE02 : Analytical Chemistry

Date: 23rd September 2025, Tuesday

Time: 10:45 AM to 12:15 PM

Total marks :30

Note: Figures to the right indicate marks of the question.

Q-1 Write the most appropriate answer from the following multiple-choice questions. [06]

- 1 Who invented the pH Scale?
 (A) S.P.L Sorenson (B) Benjamin Franklin
 (C) Henry Moseley (D) Wilhelm Rontgen
- 2 The units for conductance is
 (A) Ohm (B) Tesla
 (C) Seimens (D) Guass
- 3 What is the primary purpose of paper chromatography?
 A) To separate mixtures B) To measure pH
 C) To determine boiling points D) To identify molecular weights
- 4 In which type of chromatography is the mobile phase a gas?
 A) Liquid chromatography B) Gas chromatography
 C) Paper chromatography D) Thin layer chromatography
- 5 Which of the following is a common detector used in HPLC?
 A) UV-Vis detector B) Flame ionization detector
 C) Mass spectrometer D) All of the above
- 6 What is the main principle behind solvent extraction?
 A) Differences in boiling points B) Differences in solubility
 C) Differences in density D) Differences in molecular weight

Q-2 Write a note on hydrogen electrode and quinhydrone electrode. [06]
 OR

Q-2 Write a note on types of Conductometric titration [06]

Q-3 Write a note on classification of chromatographic methods. [06]
 OR

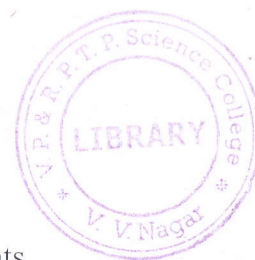
Q-3 Write a note on paper chromatography. [06]

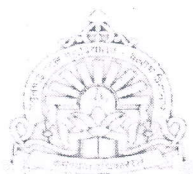
Q-4 Sketch Schematic diagram of GC or HPLC. [06]
 OR

Q-4 Write a note on electron capture detector. [06]

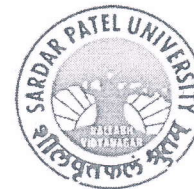
Q-5 Write a note on Nernst distribution law. [06]
 OR

Q-5 Explain ion-association in inorganic extraction system. [06]





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Bachelor of Science (Semester 5) Internal Examination - 2025

US05MACHE02 : Analytical Chemistry (QUIZ)

Date: 23rd September 2025, Tuesday

Time: 20 minutes

Total marks :15

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

[08]

- (i) If the ion size is decrease in solutions then conductance is _____ (increase, decrease)
- (ii) _____ equation is explained ohm's law ? ($K = G L/A$, $I = E/R$)
- (iii) _____ is a common stationary phase used in TLC (Water , Silica gel)
- (iv) In ion exchange chromatography, _____ acts as the stationary phase? (Ion exchange resin, Silica gel)
- (v) In _____ type of chromatography is the mobile phase a gas? (GC , TLC)
- (vi) _____ of the following is a commonly used carrier gas in gas chromatography?
(Oxygen, Nitrogen)
- (vii) _____ factor primarily influences the solubility of a solute in a solvent during extraction? (Polarity of the solvent , Volume of the solvent)
- (viii) The Nernst distribution law is based on the assumption of _____ (Non-ideal solutions , Ideal solutions)

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

[07]

- (i) To determine of moisture and water contain is not application of conductometry []
- (ii) Cell constant of an electrolytic cell is Area/length []
- (iii) To carry the components through the paper is the role of the mobile phase in paper chromatography []
- (iv) Solid adsorbent material acts as the stationary phase in column chromatography []
- (v) Flame ionization detector is a common detector used in HPLC []
- (vi) High concentrations of solute factors can cause deviations from the Nernst distribution law []
- (vii) The Nernst distribution law does not account for Solvent polarity []

