

Mid-West University
Examinations Management Office
Surkhet, Nepal
End Semester Examinations -2078

Bachelor level/ B.Sc /7th Semester
Time: 3 hrs

Full Marks : 100
Pass Marks : 50

Subject : Applied Chemistry -I (CHE 471)

Candidates are required to give their answer in their own words as far as practicable. The figures in the margin indicate full marks.

Group: A

1. **Very short answer questions: (Attempt any Fifteen questions)** [15X2=30]
- How can we use electromagnetic radiations in chemical analysis?
 - Define luminescence with examples.
 - Mention a generalized spectrochemical instrument and write its use.
 - Differentiate between atomic spectrum analysis and molecular spectrum analysis.
 - Write the characteristics of plasmas.
 - What is absorption of radiations? Write its one effect.
 - What is specific resistance? Write its use.
 - Write about the instrumental method of qualitative analysis.
 - Write the types of analysis based on size of sample.
 - Define Ohm's law with equation.
 - Write the reasons for the optical activity of organic compounds.
 - What is cotton effect? Write its applications.
 - What are the reference electrodes?
 - How can conductance measurement be helpful for the determination of solubility of sparingly soluble salts?
 - Define half-life potential.
 - Differentiate between linearly and circularly polarized light.
 - Define specific rotation.
 - Draw the polarographic circuit.

Group: B

- Short answer questions: (Attempt any Eight questions)** [8X5=40]
- Write the basic principles of spectrochemical analysis.
 - What is interference in terms of spectrum analysis? Write its effects. How can we reduce it? Explain with examples.
 - Differentiate between qualitative and quantitative analysis in spectrochemical analysis.
 - Describe atomic emission plasma source.
 - Draw the simple electrical circuit diagram for arc/spark excitation. Write its applications.
 - What are specific conductance and equivalent conductance? How are they affected by dilution?
 - Describe the polarizable dropping mercury electrode.
 - Define circular dichromism and optical rotatory dispersion. Write their applications.
 - How is conductometric titration used for the following:
 - Mixture of strong and weak acid with a base.
 - Precipitation titration.
 - Explain about the potentiometric method of analysis with instrumentations.

Group C:

Long answer questions :(Attempt any Two questions)

[2x15=30]

- 12 Compare the atomic absorption spectrometry and atomic emission spectrometry giving instrumentation with diagrams and their applications. [7.5+7.5]
- 13 Explain the working principle, instrumentations and applications of polarography for analytical chemistry. [5+5+5]
- 14 What is flame photometry? Write the principle, instrumentations and applications of flame photometry for the analysis of chemical compounds. [2+4+5+4]

THE END