



21-3-17

DOON UNIVERSITY, DEHRADUN
Mid Semester Examination, 2017
School of Environment & Natural Resources
M.Sc. (EVS & NRM), IInd Semester
Course: EES – 618: Analytical Techniques & Instrumentations

Time Allowed: 2 Hours

Maximum Marks: 30

Note: Attempt All Questions from Sections A, B, C

SECTION: A (Short Answer Type Questions/ to be answered in about max 50 words).

Attempt any Ten questions.

(Marks: 1.0 x 8 = 10)

1. Complexometric Titration is a qualitative technique. (true/false)
2. The conductivity is used to measure in a water sample.
3. is a classical analytical technique to detect the presence of certain elements, primarily metal ions, based on each element's characteristic emission spectrum.
4. What is mean deviation?
5. In complexometric titration, the EDTA is a
6. What are buffers, give their classification.
7. Differentiate between accuracy and precision.
8. What is the effect of dilution on specific conductance?
9. List three advantages of modern analytical techniques over classical techniques.
10. Write two environmental application of acid-base titration.
11. Give an example of personal error.

SECTION : B (Short Answer Type Questions to be answered in about 100 words).

Attempt any FOUR questions.

(Marks: 2.5 x 4=10)

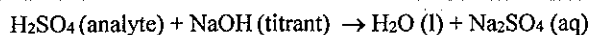
1. Discuss the importance of qualitative and quantitative techniques with examples.
2. Write a note on Indicators, and their role in Acid –base titration, with examples.
3. Why conductivity is sensitive to temperature?
4. Calculate the mean and the standard deviation of the following set of analytical results: 15.67, 15.69, and 16.03 g.
5. Why multidentated complexing agents are better?

SECTION : C (Medium Answer Type Questions to be answered in about 150 words).

Attempt any TWO questions.

(Marks: 5 x 2 =10)

1. Consider following titration reaction:



Draw a titration curve between solution pH and volume of NaOH added.

2. Classify different types of errors with examples and ways of their minimisation.
3. Explain the application and procedure of Kjeldahl method.