

23-12-2015



DOON UNIVERSITY, DEHRADUN

Final Semester Examination, 2015

School of Environment & Natural Resources

M.Tech. (Environmental Technology), Ist Semester

Course: ETC-550, Basic Instrumentation in Environmental Science and Engineering

Time Allowed: 3 Hours

Maximum Marks: 50

Note: WRITE CLEARLY YOUR QUESTION NUMBER WHILE ANSWERING TO IT.

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

Attempt any TEN questions.

(Marks: 1x10=20)

1. Define the F test.
2. What is the Student t-test?
3. What is the angle between incident and observed light in Turbidimetry?
4. What is the effect of dilution on the Specific conductance?
5. What are the differences between reference and Indicator electrodes?
6. What are the Potentiometric titrations?
7. How can we avoid/reduce chemical interferences in AAS?
8. What is the Photomultiplier?
9. Write two applications of mass Spectrophotometer.
10. The sample holders in IR spectroscopy are made of.....?
11. What is the use of NMR technique?
12. What is the use on an Ion exchange resin in your lab?

SECTION: B (Short Answer Type Questions to be answered in about 150 words).

Attempt any FIVE questions.

(Marks: 4x5=20)

1. Compare Standard Deviation with a Standard deviation of the mean.
2. Write the principle, instrumentation and application of Nephelometry.
3. Write a detailed note on Ion selective electrodes (ISE).
4. Compare Flame photometer with atomic absorption Spectrophotometer.
5. Draw the instrumentation of a Mass Spectrophotometer.
6. Compare the advantages and limitations of an Analytical Method.

SECTION: C (Medium Answer Type Questions to be answered in about 300 words).

Attempt any TWO questions.

(Marks: 5x2=10)

Explain in detail.

1. Atomic emission spectroscopy
2. Infra Red Spectroscopy
3. UV-Vis Spectrophotometry