



DOON UNIVERSITY, DEHRADUN

End Semester Examination, May, 2018

Department of Chemistry, School of Physical Sciences

Integrated M.Sc. Chemistry (IV Semester)

Course: CYS-252: Basic Analytical Chemistry

Time Allowed: 3Hours.

Maximum Marks: 50

Note: Attempt All Questions

SECTION: A

Attempt All Questions.

(Marks: 8Q × 1= 8)

1. What is the difference between qualitative and quantitative analysis? Explain 2 methods each for qualitative and quantitative analysis in chemical sciences.
2. Define soil and soil alkalinity.
3. What is retention factor in chromatography? Explain its significance.
4. What is the difference between systematic error and random error?
5. Define adulterant and additives in food technology.
6. State any method to determine calcium content in a sample of talcum powder.
7. What are chemical properties of soil?
8. Soil formation is a long and complex process. Comment.

SECTION: B

Attempt All Questions.

(Marks:10 Q × 3=30)

9. State and explain the nature of errors possible in each step of volumetric titration of HCl using 0.1 N NaOH solution. How does these errors can be minimized?
10. Analytical chemistry is interdisciplinary in nature? Explain your answer.
11. Write a descriptive note on major constituents of cosmetics and their significance.
12. Explain any two methods of food preservation.
13. Explain a method for quantifying acidity and alkalinity of water sample.
14. How does soil salinity effect the crop production?
15. What is the role of thiosulfate and starch in Winkler method for dissolved oxygen measurement?
16. Write a descriptive note on nutritional value of foods.
17. Describe paper chromatographic method for separation of ferric and aluminium tripositive ion.
18. How does cation exchange method work for water purification? Describe briefly.

SECTION: C

Attempt All Questions.

(Marks:3 Q × 4=12)

19. Explain the principle of chromatography. Mention any four types of chromatography and how these chromatographic methods are different from one another.
20. What is food processing? Explain the importance of food processing and the steps involved in food processing taking any suitable example.
21. Mention any four food adulterants and explain a chemical method to determine adulteration in any one food item.