

27/3/2018



DOON UNIVERSITY, DEHRADUN  
Mid Semester Examination, March, 2018  
Department of Chemistry, School of Physical Sciences  
Integrated M.Sc. Chemistry (IV Semester)  
Course: CYS-252: Basic Analytical Chemistry

Time Allowed: 2 Hours.

Maximum Marks: 30

Note: Attempt All Questions

SECTION: A

Attempt All Questions.

(Marks: 6Q × 1 = 6)

1. Systematic errors lead to a lack of.....
2. Suppose a determination of the diameter of Carbon atom yields a result of  $9.1 \times 10^{-9}$  cm. The currently accepted value for this diameter is  $1.54 \times 10^{-8}$  cm. What is the percentage error in the determination?
3. What parameters should be considered before collecting a sample for water quality assessment.
4. Is it possible to eliminate random errors? Explain your answer.
5. How can you improve the precision of your experimental results?
6. Give two examples of systematic errors in measurement.

SECTION: B

Attempt All Questions.

(Marks: 6Q × 2 = 12)

7. What could be sources of error in weighing using digital weighing balance.
8. Write a note on the types of error possibly observed in volumetric titration of HCl and NaOH.
9. Define soil and explain its composition.
10. What are the reasons for contamination of water?
11. What is COD and BOD of water.
12. How does soil salinity effect the crop production?

SECTION: C

Attempt All Questions.

(Marks: 3 Q × 4 = 12)

13. Explain the method of analysis of calcium and magnesium ions in a soil sample.
14. How would you determine the dissolved oxygen in a soil sample? Write the general calculations for the procedure also.
15. Write a note on soil properties and their effect on crop production. Is it possible to adjust the soil properties? Explain you answer taking a suitable example.