

[This question paper contains 2 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 7015

K

Unique Paper Code : 2172541101

Name of the Paper : Basic Principles & Laboratory Operations

Name of the Course : **B.Sc. (P) Analytical Chemistry**

Semester : I

Duration : 2 Hours

Maximum Marks : 60

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Answer **Four** questions in all.

1. (a) What is derive unit? Derive the SI unit of acceleration. (4)
(b) Define the fundamental SI units of (i) Length (ii) Time (4)
(c) Differentiate between uncertainty and errors. (3)
(d) What is the first step of chemical analysis? (4)
2. (a) Describe the preparation of 500 mL, 0.5M CuSO_4 in a volumetric flask. (5)
(b) Explain the principle of operation of electronic balance. (5)
(c) Define (i) w/v % (ii) ppb (iii) w/w %. (5)
3. (a) What is meant by accuracy? What is the least count of 10 ml pipette? (5)
(b) Measurement is taken with the help of a screw gauge having least count 0.01 mm. Calculate the maximum possible uncertainty in the measurement. (5)
(c) How does one can reduce the systematic errors? (5)

P.T.O.

4. (a) What are the critical functions of laboratory note book? (6)
- (b) A burette reading was reported as 11.45 ± 0.02 . Find the relative uncertainty. (3)
- (c) Analyses of sample of iron ore gave the following percentage values for the iron content 5.08, 5.21, 5.12, 5.09, 5.16, 5.14, 5.07, 5.14, 5.18, 5.11. Calculate the mean, standard deviation and coefficient of variation for the values. (6)
5. (a) List the steps in a chemical analysis. Explain the steps involved. (5)
- (b) Find the significant figures in the following : (5)
- (i) 81.001 (ii) 1.05×10^7
- (c) Round off the number 43.60235 (5)
- (i) upto one decimal point.
- (ii) upto three decimal point.
6. (a) What are the unit of (i) Normality (ii) Molarity (iii) Molality (iv) Molar mass. (6)
- (b) A student measured the volume of a liquids as given below : (6)

S.No.	1	2	3	4	5	6
Vol(ml)	74.5	75.3	76.5	75.2	76.2	76.4

Calculate the standard deviation.

- (c) What is coefficient of variation? Give its importance. (3)