



UNIVERSITY OF THE PUNJAB

B.S. 4 Years Program : Fifth Semester – 2020

Roll No. in Fig.

Roll No. in Words.

Paper: Analytical Chemistry

Course Code: CHEM-307

Part – I (Compulsory)

Time: 15Min. Marks: 10

Attempt this Paper on this Question Sheet only.

Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Signature of Supdt.:

Q.1. Encircle the right answer cutting and overwriting is not allowed. (10x1=10)

Q1. Choose the correct answer. Over writing and cutting are not acceptable. (MCQ'S) (10)

i) Parts per billion solution is also expressed as _____ g/L.

- a) milli (b) micro
c) nano (d) pico

ii) The difference between the highest and the lowest value of the observations in a data is called:

- a) Mean (b) Range
c) Total frequency (d) Sum of observation

iii) _____ test is also known as Dixon's test.

- a) F-test (b) t-test
c) Q-test (d) X-test

iv) Chromatography is used to separate

- a) solution (b) mixtures
c) molecules (d) atoms

v) 0.0000034 has _____ significant figures.

- a) 7 (b) 2 (c) 3 (d) 8

vi) Components which have large value of K have affinity for

- a) mobile phase (b) stationary phase
c) no phase (d) solution

vii) Liquid chromatography can be performed in which of the following ways?

- a) Only in columns (b) Only on plane surfaces
c) Either in columns or on plane surfaces (d) Neither in columns nor on plane surfaces

viii) _____ are the causes of deviation from Beer-Lambert's law.

- a) Improper slit width (b) Polymerization of species
c) Impurities in colored compounds (d) All

ix) The material used for the making of cuvette for UV light is _____

- a) Glass (b) Quartz
c) iron (d) None

x) _____ transition does not occur at all.

- a) $\sigma - \sigma^*$ (b) $\sigma - \pi^*$
c) $\pi - \pi^*$ (d) n to π^*



ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2. Give short answers of the following:

(10x2=20)

- 1) Differentiate between systematic and random error?
- 2) What is the difference between molarity and molality?
- 3) What is the difference between precision and accuracy?
- 4) Enlist the methods to detect colorless spots in TLC.
- 5) What is retention factor? Write down its formula.
- 6) Differentiate between Normal phase and reverse phase chromatography
- 7) Why is it preferred to express Beer Lambert Law in Absorbance than Transmittance?
- 8) What are the advantages of using diffraction grating in UV/Vis spectroscopy?
- 9) What is the effect of conjugation on absorption maximum?
- 10) Write down two reasons of deviation from Beer Lambert's law.

Q.3. Give brief answers of the followings.

(3x10=30)

- i) (a) Define standard deviation. What is the significance of Student T test? (5)
(b) What is meant by quality control charts? What are its advantages? (5)
- ii) (a) What are the factors affecting R_f value in paper chromatography? (5)
(b) Describe different types of adsorbents used in column chromatography. (5)
- iii) (a) How do UV/Vis radiations interact of with matter? (6)
(b) What are the applications of Beer Lambert's law? (4)