

NOTE: i) All the questions are compulsory.

ii) Figures to the right indicate full marks.

iii) Use of non-programmable calculator/ log table is allowed.

Q1.)

A) Multiple choice question. (Any 9)

(9 Marks)

- 1) Accuracy stands for _____
a) Producibility b) Sensitivity c) Selectivity d) Correctness
- 2) The value of the selectivity may vary from _____
a) 0 to 1 b) 1 to 20 c) 1 to 1 d) 2 to 1
- 3) Universe is also called _____
a) Reproducibility b) Population c) Sampling unit d) Increment
- 4) The _____ is measured in terms of the slope of the calibration curve
a) Reproducibility b) Sensitivity c) Selectivity d) Accuracy
- 5) _____ used to measure absorbance of colored solution.
a) Calorimeter b) Coulometer c) Potentiometer d) Conductometer
- 6) _____ in the Lamber's law.
a) $A \propto c$ b) $A \propto T$ c) $A \propto I$ d) $A \propto b$
- 7) Range of visible region is _____
a) 1-180nm b) 750-950nm c) 180-400nm d) 400-700nm
- 8) Plane polarized light vibrate in _____ plane
a) All b) Single c) Double d) Triple
- 9) _____ Indicator is used in complexometric titration.
a) Adsorption b) Neutralization c) Metallochromic d) Phenolphthalein
- 10) Solution in flask is called as
a) Titrant b) Titrand c) Indicator d) Primary standard
- 11) _____ is example of secondary standard.
a) Potassium chromate b) Succinic acid c) Sodium hydride d) Oxalic acid
- 12) Iodometry is one of the most important _____ titration
a) Acid-base b) complexometric c) redox d) precipitation

B.) Match the column.

(column 1)

(Column 2)

(3Marks)

- | | |
|--------------|--------------------------------|
| 1) PH change | a. Dispersion |
| 2) Mean | b. Phenol red |
| 3) prism | c. Average of all observation. |

C.) True or False.

(3 Marks)

- 1) Electro gravimetry is an optical method.
- 2) Spectrophotometers are more sensitive than colorimeter.
- 3) Concentration of primary standard is known.

(20 Marks)

Q2.) Answer the following (Any 4)

- 1) Write a note on: i) universe ii) Sample iii) Increment iv) Gross Sample
- 2) What are different methods of minimizing error?
- 3) Outline different analytical methods? How are they classified?
- 4) Define the following.
a) Accuracy b) Precision c) Reproducibility d) Sensitivity e) Selectivity.
- 5) Explain Compact solid and particulate solids.
- 6) Calculate the mean, median and mode for the following set of values.
18.30, 18.28, 18.32, 18.27 and 18.28.

(20 Marks)

Q3.) Answer the following (Any four)

- 1) Explain various components of single beam colorimeter with diagram.
- 2) Explain prism monochromator with diagram.
- 3) Define :- a) Radiant power b) Absorbance c) Transmittance d) Wavelength of maximum interaction.
- 4) Define and explain plane polarized light.
- 5) What is electrochemical interaction explain any two.
- 6) What are deviations from Beer's and Lambert's law.

(20 Marks)

Q4.) Attempt the following (Any four)

- 1) Define the following: a) titrant b) titrand c) End point d) Indicator e) Equivalence point
- 2) What is PH and POH ? Derive the relation between them.
- 3) Write a note on a) common-ion effect b) co-precipitation
- 4) State different types of titration explain any two of them.
- 5) Explain principle of gravimetric analysis and different steps involve in it.
- 6) Explain the theory of Diphenyl amine indicator and PH indicator.