

T.Y. B.Sc. Sem -V (CBCS 2016 Course) : Winter 2018
Subject : Chemistry : Analytical Chemistry – I

Day : Wednesday
Date : 17/10/2018

Time : 03.00 P.M. To 06.00 P.M
Max. Marks : 60

W-2018-0752

N.B.

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.

Q.1 Attempt **ANY TWO** of the following: **(12)**

- a) Define common ion effect and discuss its importance in gravimetric analysis.
- b) Draw a typical TG curve and give the information that can be obtained from the TG curve.
- c) Draw schematic diagram of nephelometer. Describe its construction and working.

Q.2 Attempt **ANY TWO** of the following: **(12)**

- a) Define angle of specific rotation. Describe the measurement of it by using a polarimeter.
- b) How are spectral and chemical interferences prevented or corrected in AAS determination.
- c) Write a note on digestion.

Q.3 Attempt **ANY TWO** of the following: **(12)**

- a) The solubility of silver chloride in water is 1.435×10^{-3} grams per litre at 25°C . Calculate the solubility product for silver chloride assuming complete dissociation (At wt. Ag = 108, Cl = 35.5).
- b) 1.0 gm of an organic compound was dissolved in 100 ml water. This solution gave $+2.1^{\circ}$ polarimeter reading in 20 cm tube. Calculate specific rotation of this compound.
- c) For sucrose ($\text{C}_{12}\text{H}_{22}\text{O}_{11}$), specific rotation is $[\alpha]_D^{20} + 60.5^{\circ}$ calculate:
 - i) Angle of rotation for sucrose containing 2.0 gm per lit in a 10cm cell.
 - ii) Molecular rotation of sucrose.

Q.4 Attempt **ANY THREE** of the following: **(12)**

- a) Explain the factors affecting thermogravimetric curve.
- b) Define following terms:
 - i) Specific rotation
 - ii) Optical isomerism
 - iii) Plane of polarization
- c) How can you classify the wash liquids? Explain.
- d) Write a note on Total consumption burner in AAS.

Q.5 Attempt **ANY FOUR** of the following: **(12)**

- a) State and explain the term solubility product with example.
- b) Explain the principle of thermal analysis with its classification.
- c) Write a note on photomultiplier tube.
- d) Give any two applications of Turbidimetry.
- e) Explain various factors affecting the solubility of a precipitate.
- f) Write applications of polarimetry.

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