

T.Y.B.SC. SEM – V (CBCS - 2016 Course) : SUMMER - 2019

Subject : Chemistry : Analytical Chemistry – I

Day : Thursday
Date : 02/05/2019

Time : 11.00 A.M. To 02.00 P.M.

Max. Marks : 60

S-2019-0873

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) What precautions can be taken to minimize co-precipitation and post precipitation?
- b) Explain the principle and instrumentation of TGA in detail.
- c) Write a note on hollow cathode lamp in AAS.

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

- a) Sketch the schematic diagram of the turbidimeter and describe its construction and working.
- b) What is polarimeter? Explain the measurement of optical rotation of optically active substances by using polarimetry.
- c) Explain the role of digestion in purification of precipitate.

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

- a) The solubility product of $Mg(OH)_2$ is 1.18×10^{-11} at $25^\circ C$. calculate the solubility in gram per litre (mol wt of $Mg(OH)_2$ is 58)
- b) The specific rotation of amino acid is 154° at 600 nm. What is the concentration of solution in moles per lit? If rotation is 0.62° with length of tube is 10 cm.
- c) A TG curve was obtained for 10.65 mg of a sample containing $CuSO_4 \cdot 5H_2O$. When the monohydrate formation was complete at about $200^\circ C$, the loss in mass wt. 1.2 mg. Find the percentage of $CuSO_4 \cdot 5H_2O$ in the sample.

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

- a) Describe precipitation in homogeneous solution in gravimetric analysis with suitable example.
- b) Classify thermal analysis and explain applications of DTA.
- c) With the help of block diagram describe instrumentation of AAS.
- d) Give an account of the factors affecting the measurement in turbidimetry.

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

- a) Differentiate between TGA and DTA based on principle, nature of curve and applications.
- b) What are the conditions of ideal wash liquid should satisfy?
- c) Write the principle of AAS with its applications.
- d) Explain turbidimetric titration with suitable example.
- e) Write any two applications of polarimetry.
- f) Define the terms: 1) Solubility product 2) Common ion effect

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