

**LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034**



**B.Sc. DEGREE EXAMINATION – CHEMISTRY**

**FIRST SEMESTER – NOVEMBER 2019**

**16/17/18UCH1MC02 / CH 1505 / CH 1502 – ANALYTICAL CHEMISTRY**

Date: 01-11-2019

Dept. No.

Max. : 100 Marks

Time: 09:00-12:00

**PART A**

**ANSWER ALL QUESTIONS**

**10x 2 = 20**

1. Mention any two antidotes for heavy metal poisoning
2. Distinguish accuracy from precision.
3. Classify the following as primary or secondary standards 1) Potassium dichromate 2) Potassium permanganate
4. Calculate the molarity if 12.6 g of Oxalic acid dihydrate is made up to 500mL.
5. What is solubility product? Mention its significance.
6. Define Gravimetric factor.
7. Mention the stationary phases in column chromatography.
8. How do you choose a solvent for recrystallization?
9. How are the plots obtained in TGA and DTA?
10. Mention the factors that influence the thermogram.

**PART B**

**ANSWER ANY EIGHT QUESTIONS**

**8 x 5 = 40**

11. Calculate the arithmetic mean, spread, median and standard deviation of the following burette readings.  
21.5, 21.2, 21.8, 21.1 and 21.4.
12. Explain in brief the general storage facilities of chemicals in laboratory.
13. What are the characteristics of a primary standard?
14. Outline the principle and reaction involved in the estimation of Zinc by complexometric titration.
15. Classify the following as Strong or Weak acids, 1) HF 2) HI 3) HCl 4) HNO<sub>3</sub> 5) CH<sub>3</sub>COOH.
16. Mention the principle and procedure involved in the estimation of halide ions by Volhard's method.

17. Distinguish a) co-precipitation from post precipitation.  
b) nucleation from crystal growth
18. Mention the advantages of organic precipitating agents over inorganic precipitating agents.
19. Explain the principle involved in i) steam distillation ii) Paper chromatography
20. Mention the uses of drying agents and their properties.
21. Mention the importance of TGA.
22. Explain the DTA Curve of Calcium oxalate monohydrate

**PART C**

**ANSWER ANY FOUR QUESTIONS**

**4 x 10 = 40**

23. Write a note on determinate and indeterminate errors
24. a) Explain the following i) Elution ii) Seeding  
b) What are the factors that influence column efficiency **(4+6)**
25. a) Sketch schematically the distillation apparatus setup for the distillation of two miscible liquids and explain the principle involved  
b) Mention the indicator in the following titrations. i) Oxalic acid Vs Sodium Hydroxide  
ii)  $\text{Fe}^{2+}$  Vs Potassium dichromate **(6+4)**
26. a) What is Buffer solution? Mention any two buffer solutions **(4)**  
b) i) Calculate the pH of 0.01 N HCl . ii) Distinguish Normality from Molality **(6)**
27. a) Mention the principle and procedure involved in precipitation titrations.  
b) Mention any two organic precipitating agents with their structures **(6+4)**
28. a) What are the physical parameters that can be obtained from DTA  
b) Sketch and explain the TGA Curve of Silver Nitrate **(5+5)**

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