



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – CHEMISTRY

FIRST SEMESTER – APRIL 2017

16UCH1MC02 / CH 1505 - ANALYTICAL CHEMISTRY

Date: 26-04-2017
Time: 09:00-12:00

Dept. No.

Max. : 100 Marks

PART A

ANSWER ALL QUESTIONS

10x 2 = 20 Marks

1. What are carcinogens?
2. Calculate the median and range of the burette readings obtained by a student. 21.0, 21.1, 20.8, 20.9 and 21.2.
3. Mention the use of Alumina in Column Chromatography.
4. What is meant by carrier gas? Give an example.
5. Calculate the normality of sodium carbonate if 5.3 g of it is made up to 1 litre.
6. Identify the following as primary or secondary standards a) Potassium dichromate b) Potassium permanganates.
7. What is digestion of a precipitate?
8. What is meant by adsorption indicator?
9. Mention the plot of TGA.
10. List out the factors that influence the thermogram.

PART B

ANSWER ANY EIGHT QUESTIONS

8 x 5 = 40 Marks

11. What are determinate errors? How do we classify them?
12. Mention the significance and importance of MSDS of a substance.
13. Outline the principle involved in the estimation of Magnesium using Complexometric titration.
14. Mention any Five acid–base indicators.
15. What is Molarity? Calculate the Molarity when 40 g of sodium hydroxide is made up in 2 litres of water.

16. Match the following

Precipitating agent

Metal

a) Dimethylglyoxime

Zinc

b) 8-Hydroxy quinoline

Barium

c) Hydrogen sulphide

Calcium

d) Oxalic acid

Nickel

e) Potassium Chromate

Copper

17. What is Coprecipitation? Mention the types of coprecipitation.
18. What are the characteristics of precipitating agents?
19. Mention the importance of TGA.
20. What are the physical parameters that can be obtained from DTA?
21. Explain the following terms. i) chromatography ii) elution.
22. List out the factors that influence the column efficiency.

PART C

ANSWER ANY FOUR QUESTIONS

4 x 10 = 40 Marks

23. a) Distinguish accuracy from precision. Mention the number of significant figures in the following. i) 6.023 ii) 6.626 iii) 100.001 iv) 1.01. (4+2)
b) Calculate the arithmetic mean and standard deviation for the following data
18, 22, 21, 19 and 20. (4)
24. a) What are the characteristics of a primary standard? (4)
b) What is Buffer solution? Calculate the pH of i) 0.01N HCl and 0.1 N NaOH. (2+4)
25. a) Classify the following as strong acid/ base or weak acid/base.
i) Oxalic acid ii) Potassium hydroxide iii) nitric acid iv) ammonium hydroxide v) hydrochloric acid.
b) Explain the principle involved in i) steam distillation ii) vacuum distillation (5)
26. a) Mention the principle and advantages of paper chromatography. (6)
b) Explain the following terms. i) Retention factor ii) Plate height. (4)
27. a) Mention the principle and procedure involved in the estimation of halide ions by Volhard method. (6)
b) Draw the Structure of Dimethyl glyoxime and 8-Hydroxy quinolone. (4)
28. a) Explain the DTA Curve of Calcium oxalate monohydrate. (5)
b) Sketch and explain the TGA Curve for Silver Nitrate. (5)
