LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

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

FIRST SEMESTER – **NOVEMBER 2019**

UCH 1502 – ANALYTICAL CHEMISTRY

Date: 01-11-2019   Dept. No.   Max. : 100 Marks

Time: 09:00-12:00

Part-A

Answer ALL questions   **(10x2=20)**

1. What is an universal antidote?

2. Distinguish between the terms accuracy and precision.

3. What are the requirements of a primary standard?

4. Calculate the normality of NaOH of a solution containing 8g of NaOH dissolved in 500mL [Equivalent of NaOH=40]

5. Define the term solubility product.

6. What is meant by gravimetric factor?

7. Define the term 'R_f' value.

8. Name any two adsorbent materials used in column chromatography.

9. What is a thermogram?

10. Draw the TGA curve of $CaC_2O_4.H_2O$

Part-B

Answer any EIGHT questions   **(8x5=40)**

11. Write the general rules to be observed in the storage and handling of chemicals.

12. How many significant figures are there in each of the following?

 (i) 0.1739   (ii) 1003   (iii) 0.00149   (iv) 646   (v) 9.2

13. How can pipette, burette and standard flask be calibrated?

14. a) State the law of volumetric analysis.

    b) What are the requirements of volumetric analysis? (2+3)

15. Define the term titration. Mention the types of titration with an example for each.

16. What are buffer solutions? Explain any one method of preparation of acidic and basic buffers.

17. How is chloride ion determined by Volhard's method?

18. Define the term solubility. Explain the various factors affecting it.

19. Write a note on the precipitation from homogeneous medium.

20. Explain the basic principle involved in ion-exchange chromatography.

21. Explain the various factors affecting the thermogram.

22. Draw and explain the TGA curve of $CuSO_4.5H_2O$.

Part-C

Answer any FOUR questions   **(4x10=40)**

23. Define the term error. Explain its various types and methods of minimizing it.

24. a) Write a note on the purification of solid organic compounds   **(6)**

b) Define the following terms: **(4)**

(i) Molarity   (ii) Normality

25.a) Explain the principle and the procedure involved in the estimation of calcium using EDTA as a titrant.**(8)**

   b) Write the Henderson equation and explain the various terms involved in it.   **(2)**

26. a) Write a note on the theory of adsorption indicators.   **(6)**

   b) List the differences between co-precipitation and post precipitation   **(4)**

27. Discuss the principle applications of the following chromatographic techniques.   **(5+5)**

   (a) Paper   (b) TLC

28. Explain the principle and instrumentation involved in DTA technique.

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