LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

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

FIRST SEMESTER – **NOVEMBER 2018**

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

Date: 31-10-2018   Dept. No.   Max. : 100 Marks
Time: 09:00-12:00

PART-A

Answer **ALL** Questions   **(10x2=20 marks)**

1. How many significant figures are there in the following numbers?

   (a) 0.05650 (b) 1.56×10^{-5}

2. What is an universal antidote?

3. State the law of volumetric analysis.

4. What are the differences between equivalence point and end point?

5. Define the term 'Gravimetric factor'.

6. What are sparingly soluble salts? Give an example.

7. Define R_f value.

8. What is meant by sublimation?

9. Draw the TGA curve of Calcium oxalate monohydrate.

10. Draw the DTA curve of $CuSO_4.5H_2O$.

PART-B

Answer any **EIGHT** Questions   **(8x5=40 marks)**

11. Distinguish between a) Accuracy and Precision b) Determinate error and
    Indeterminate error

12. List the general rules for the mind in storage and handling of chemicals.

13. a) Define the term normality.

    b) Calculate the volume of 0.125 N of NaOH required to neutralize 25mL of 0.1 N of HCl.

14. What are the requirements of a primary standard?

15. What are buffer solutions? Explain their applications in biological systems.

16. Explain the method of determination of chloride by Volhard's method.

17. Define the term solubility. What are the factors affecting it?

18. Distinguish between co-precipitation and post-precipitation.

19. What isrecrystallization? What are the various steps involved?

20. Explain the basic principle and the procedure involved in TLC.

21. Explain the various factors affecting the size and shape of a thermo gram.

22. List out the differences between TGA and DTA.

PART-C

Answer any **FOUR** Questions   **(4x10=40 marks)**

23. a) Define Standard deviation.   **(2)**

     b) Determine the Standard deviation of the following titration values:

     4.95, 5.00, 5.11, 5.04, 4.90 ml   **(8)**

24. a) Derive Henderson equation for an acid buffer and mention its significances.   **(8)**

    a) Calculate the pH of 0.0001N HCl.   **(2)**

25. a) What are complexometric titrations? Explain the principle and procedure.   **(5)**

   b) Explain the various techniques of distillation.   **(5)**

26. a)Enumerate the advantages of precipitation from homogeneous solution.

   b) What are argentometric titrations? Explain the principle and procedure.   **(5)**

27. Explain the principle and applications of the following chromatographic techniques.

   a) Column   (b) Paper

28. Explain the principle and instrumentation of the following thermal analysis.

   a) TGA   (b) DTA

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