LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

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

FIRST SEMESTER – **NOVEMBER 2017**

17/16UCH1MC02 / CH 1505 – ANALYTICAL CHEMISTRY

Date: 08-11-2017   Dept. No.   Max. : 100 Marks
Time: 01:00-04:00

PART-A

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

1. Define the term 'coefficient of variation'.

2. How many significant figures are there in the following numbers?   a) 0. 565   b) 1.56×10^{-5}

3. What are redox indicators?

4. What are the requirements of a primary standard?

5. Define solubility product.

6. Define the term 'gravimetric factor'.

7. What is sublimation?

8. State the stationery and mobile phases of paper chromatography.

9. Draw the TGA curve of Calcium oxalate monohydrate.

10. Give any two differences between TGA and DTA.

PART-B

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

11. Distinguish between   a) accuracy and precision   b) determinate error and indeterminate error.

12. Write the general rules in the storage and handling of chemicals.

13. Define the term end point. How does it differ from equivalence point?

14. a) State the law of volumetric analysis.

    b) Give the limitations of volumetric analysis.

15. State and explain the criteria for choosing an indicator for a given acid - base titration.

16. Explain briefly the mechanism of precipitate formation.

17. List the various factors affecting solubility of a compound.

18. Write a note on Von Weimarn ratio.

19. Define R_f value. Explain the various factors affecting R_f value.

20. Describe the various steps involved in recrystallization.

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

22. Discuss the instrumentation and principle involved in Thermogravimetric Analysis (TGA).

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PART-C

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

23. a) Define the term mean deviation.   **(2)**

   b) Calculate the mean deviation of the following five results   **(3)**

     8.5, 9.5, 10.0, 10.5, 11.5

   c) Explain the various methods of minimizing errors.   **(5)**

24. a) Explain any three types of titrations with an example for each.   **(6)**

   b) Define the term normality. Calculate the normality of NaOH if 40g of it is dissolved in 1Litre.

        (4)

25. What are argentometric titrations? Explain the principle and procedure involved in the

   determination of Chloride by Volhard's method.

26. Explain the basic principle and the applications of Ion-exchange Chromatography.

27. Explain the instrumentation and principle involved in Differential Thermal Analysis (DTA).

28. a) What are buffer solutions? Give its types and applications in biological systems.

   b) Write a note on steam distillation.   **(5+5)**

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