LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION - **CHEMISTRY**

FIRST SEMESTER – NOVEMBER 2015

CH 1505/CH 1502/CH 5501 - ANALYTICAL CHEMISTRY

Date : 06/11/2015 Dept. No. Max. : 100 Marks

Time : 01:00-04:00

PART - A

Answer **ALL** questions (10 × 2 = 20 marks)

01. How will you handle toxic chemicals?
02. What do you mean by absolute and relative errors?
03. What are the differences between adsorption and partition chromatography?
04. How will you purify
    (i) Benzoic acid
    (ii) Camphor
05. Calculate the normality of a solution containing 0.4 g of NaOH per litre of solution.
06. What is buffer solution?
07. What are adsorption indicators? Give an example.
08. What is Von Weirman ratio?
09. Write the principle involved in DTA.
10. Sketch the TGA curve of $AgNO_3$.

PART - B

Answer any **EIGHT** questions (8 × 5 = 40 marks)

11. Discuss the methods of eliminating errors.
12. Write notes on MSDS and COSHH. (2½ + 2½)
13. What is the principle and technique used in distillation process?
14. Differentiate Column and paper chromatography.
15. Derive Henderson equation.
16. Suggest an indicator for the titration of
    (i) Fe^{2+} vs $K_2Cr_2O_7$
    (ii) HCl vs NaOH
    (iii) Oxalic acid vs $KMnO_4$
    (iv) HCl vs Na_2CO_3 (2+1+1+1)
17. What are metal ion indicators? Mention their characteristics. (2+3)
18. Derive the relation between Solubility and Solubility product.
19. Write notes on co-precipitation and post- precipitation. (2½ + 2½)
20. Discuss the advantages of precipitation from homogeneous medium.
21. Explain the thermogram of $CaC_2O_4.H_2O$
22. Discuss the instrumentation and applications of DTA.

PART-C

Answer any **FOUR** questions (4 × 10 = 40 marks)

23. (i) Explain First Aid procedure.
    (ii) What are normal error curves? Mention its importance. (5+5)
24. Give a detailed account on Gas chromatography.
25. Discuss acid-base and quinonoid theories of indicators.
26. (i) What is TLC? How is it useful in the separation and purification of organic compounds?
    (ii) Explain the buffer action of $CH_3COOH + CH_3COONa$. (5+5)
27. Enumerate the estimation of Chloride by Volhard's method.
28. Describe the experimental setup of TGA with a neat diagram.

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