 LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

**M.Sc.** DEGREE EXAMINATION - **CHEMISTRY**

SECOND SEMESTER – **NOVEMBER 2012**

# CH 2901 - INSTRUMENTAL METHODS OF CHEMICAL ANALYSIS

Date : 06/11/2012 Dept. No. Max. : 100 Marks

Time : 1:00 - 4:00

**PART A**

Answer **all** the questions: 10x2=20 Marks

1. Define molarity.
2. State Beer Lambert’s law.
3. Calculate the pH of 0.01N NaOH.
4. What is Buffer solution? Give an example.
5. Mention the principle of HPLC.
6. State Bragg’s law.
7. Give an example for Mc-Lafferty rearrangement.
8. Mention the significance of finger print region in IR spectroscopy.
9. Define gyroscopic motion.
10. How many ml of conc.HCl (density = 1.18 g/ml, 36.0 wt% HCl, MW = 36.5) should be diluted to 1litre to produce a 0.100 M solution?

**PART B**

Answer **any eight** questions: 8x5=40 Marks

1. What are the requirements of a primary standard?
2. How is sulphate determined by turbidometry?
3. Discuss the significance of PMT.
4. Explain the analysis of riboflavin by spectroflurometry.
5. Write a short note on circular dichroism with an example.
6. How is ion selective electrode helpful in the analysis of fluoride in drinking water?
7. Draw and explain the working principle of a thermal conductivity detector.
8. Briefly explain the instrumentation of EPR.
9. Explain the fragmentation pattern of decane.
10. Discuss the absorption bands of functional groups in IR spectrum.
11. Explain the method of single crystal XRD determination.
12. Write short notes on detectors used in HPLC.

**PART C**

Answer **any four** questions: 4x10=40 Marks

1. Draw and explain the working principle of dark beam spectrophotometer.
2. Briefly discuss the instrumentation of AAS.
3. a) Explain the instrumentation of turbidometry.

b) How is phosphate determined by turbidometry.

26. Draw the block diagram and explain the instrumentation of GC.

27. Explain the fragmentation pattern of

a) benzyl alcohol

b) pentanoic acid

28. Briefly explain the instrumentation of NMR with a block diagram.

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