

17. (a) What is coulometry? With suitable circuit diagrams explain the different types of coulometric analysis.

Or

- (b) Explain instrumentation used in polarography measurement.
18. (a) Discuss the methods used in the detection and analysis of components in partition chromatography.
- Or
- (b) Describe the various techniques employed for the development of chromatoplates in TLC.
19. (a) What are tracer elements? Discuss the applications of two elements in analytical chemistry.

Or

- (b) Write briefly on the following:
- (i) Radioactive decay
 - (ii) Isotope dilution analysis.
20. (a) What is meant by the term confidence limit? How it is determined? What is its significance?

Or

- (b) Explain briefly Q , t and F tests.

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M.Sc.(CBCS) DEGREE EXAMINATION, APRIL 2013.

Fourth Semester

Chemistry

RESEARCH METHODOLOGY

(For those who joined in July 2008-2011)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer.

1. Explain briefly on monographs.
2. Expand the following abbreviated names:
 - (a) J. Indian Chem. Soc.,
 - (b) Bull. Chem. Soc. Japan.
3. Indicate the advantages and disadvantages of amperometric titrations.
4. What is stripping voltammetry?



5. Write the principles of gas chromatography.
6. What is R_f value? What are the largest and smallest R_f values possible?
7. What is the principle involved in isotopo dilution analysis?
8. What are the tracer elements?
9. Define confidence limits and interval.
10. What are the rules for array?

PART B — ($5 \times 5 = 25$ marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) Explain the application of scientific citation index.

Or

- (b) How would you locate journal articles?

12. (a) Discuss the principle and applications of stripping voltammetry.

Or

- (b) What are the ion-selective electrodes used in titrations in inorganic analysis?

13. (a) Write a note on HPLC.

Or

- (b) Explain briefly the techniques of column chromatography.

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14. (a) Discuss the working of Geiger Muller counter used in the detection and measurement of radioactivity.

Or

- (b) Explain the characteristics of a Gamma-ray spectrometer.

15. (a) Explain the least square method for best fit line.

Or

- (b) What are significant figures? Write rules for their computation.

PART C — ($5 \times 8 = 40$ marks)

Answer ALL questions, choosing either (a) or (b).

16. (a) (i) What do you mean by scientific method? Write the principles to be followed by the researcher before drawing conclusion.

- (ii) What are types of research? Explain the two research methods.

Or

- (b) Explain briefly on the following:

- (i) Patent
- (ii) Reviews
- (iii) Monographs
- (iv) Chemical abstract.

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