

D.K.M. COLLEGE FOR WOMEN (AUTONOMOUS), VELLORE – 1**SEMESTER EXAMINATIONS****NOVEMBER – 2016****15CPCH1D*****ELECTIVE : MODERN INSTRUMENTATION TECHNIQUES*****Time: 3 Hrs****Max. Marks: 75****SECTION – A (5 X 6 =30)****Answer ALL the questions.**

1. a) i) What are chelating agents? Give examples.
ii) What are masking and demasking agents? Give examples.
(Or)
b) Explain the basic principles and applications of a cyclic voltammetry. (6)

2. a) Explain the scope, instrumentation and applications of HPLC.
(Or)
b) i) What do you understand by retention volume ? (2)
ii) Describe three detectors used in Gas chromatography? (4)

3. a) Discuss about isotope dilution analysis and neutron activation analysis.
(Or)
b) Write the any two applications of TGA,DTA and DSC.

4. a) Describe the principle and applications of potentiometric methods.
(Or)
b) What is meant by overvoltage and decomposition potential? Mention their importance.

5. a) Explain the basic principle and applications of DPN and SPL.
(Or)
b) Define the term nanotechnology? Explain any two methods of preparation of nanomaterials.

SECTION – B (3 X 15 =45)**Answer any THREE of the following questions.**

6. a) Explain the basic principles and apparatus of polarography? Mention its applications. (5)
b) Describe in detail about the amperometric titrations (5)
c) What are the advantages and disadvantages of DME? (5)

7. a) What is chromatography ? Give a general idea of different types of chromatography. (6)
b) What are the applications of GLC? (4)
c) Explain in detail about gel chromatography. (5)

8. a) Explain the basic principles, radiation sources and instrumentation of atomic absorption spectroscopy (10)
b) Write a short note on radiometric titrations. (5)

9. a) Discuss the principle, instrumentation and applications of coulometric titrations. (8)
b) Write the principle and applications of conductometric methods. (7)

10. a) How nanoparticles are characterized by SEM and TEM methods? (5)
b) Discuss about confocal microscopy (5)
c) What are the applications of nanotechnology? Briefly explain. (5)