NRJ/KW/17/4275

B.Pharm Fourth Semester (C.B.S.) Examination

PHARMACEUTICAL ANALYSIS—II

(Electroanalytical and Physical Methods)

Paper—3

Time : Three Hours] [Maximum Marks : 80

N.B. :— (1) Question No. **1** is compulsory.
(2) Solve any **FOUR** questions from remaining.
(3) Draw neat labelled diagram wherever necessary.

1. Attempt any **FIVE** of the following :
   (a) Draw and explain a conductometric titration curve of titration between acetic acid and sodium hydroxide.
   (b) Explain the mechanism of rotation of plane of plane polarised light by optically active compound.
   (c) What are ion selective electrodes ? Describe giving suitable examples.
   (d) Explain refractive index, critical angle, specific refraction and molar refraction and give significance of each.
   (e) Explain effect of concentration, temperature and solvent on optical rotation giving suitable examples.
   (f) Explain decomposition potential and over potential in electrogravimetry.
   (g) Explain pulse polarography and its advantages. 4×5=20
2. (a) What are potentiometric and dead stop titrations ? Explain their advantages over classical titration methods. Name the reference and indicator electrodes used in Acid-base, redox, precipitation, non-aqueous and complexometric titrations. 8
   (b) Describe the methods for exact location of end point in potentiometric titrations. 7
3. (a) What do your understand by residual, diffusion, limiting current and half wave potential ? State Ilkovic equation and discuss factors affecting it. Explain various methods of quantization in polarography. 10
   (b) Give a brief account of dropping mercury electrode. 5
4. (a) Describe the principle of electrogravimetry. What are the different factors that need to be controlled during electrogravimetric analysis ? Explain instrumentation in electrogravimetry. 8
   (b) Describe construction and working of simple polarimeter and give applications of polarimetry in pharmacy. 7
5. (a) What do you understand by constant current and controlled potential coulometry ? Explain how end point is determined in constant current coulometry. Give advantages and important applications of coulometric titrations. 10
   (b) Write a note on internal and external generation of titrant in coulometric titrations. 5
6. Explain the basic principle of DTA and DSC. Describe the instrumentation of DSC and elaborate on factors influencing the results. Give applications of thermal methods of analysis in pharmacy. 15
7. Write short notes on any **THREE** of the following :
   (a) Amperiometric titrations
   (b) Abbe's refractometer
   (c) Reference electrodes
   (d) Thermogravimetry
   (e) Standard electrode potential.