Con. 1775–09.   BB–7642

(2 Hours)   [Total Marks : 35

N.B. : (1) Question No. **1** is **compulsory**.
      (2) Attempt any **four** questions out of remaining **six** questions.
      (3) Draw **neat diagrams** wherever **necessary**.
      (4) **Figures** to the **right** indicate **full** marks.

1. (a) State and derive Beer Lambert's Law for UV visible spectrophotometry.   4
   (b) Explain any three factors influencing fluorescence.   3

2. (a) Write a note on sample preparation techniques in IR spectroscopy.   4
   (b) With suitable examples discuss various types of quenching.   3

(a) Write a note on Electrogravimetry as an analytical tool.   4
   (b) Disuss the applications of polarographic waves.   3

4. (a) Explain the following terms (any **four**) :–   4
         (i) Supporting electrolyte
         (ii) Bending vibrations
         (iii) Phosphorescence
         (iv) Quantum efficiency
         (v) Deposition potential.
   (b) Enlist various detectors used in UV-visible spectrophotometer. Explain any   3
      one in detail.

5. (a) Give a descriptive account of coulometric techniques.   4
   (b) Discuss the basic modes of interaction of molecules with IR radiations.   3

6. (a) Explain with a suitable diagram construction and working of dropping mercury   4
      electrode.
   (b) Calculate the concentration in µg/ml for a solution of drug in 0·1 N HCl giving   3
      an absorbance at its λmax 275 nm of 0·610 in a 4 cm cell. Molar absorptivity
      at 275 nm is 5430. Molecular weight of substance is 175.

7. Write short notes on any **two** :–   7
     (a) Finger print region in IR spectroscopy
     (b) Amperometric Titrations
     (c) Soxhlet Extraction.

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