

GUJARAT TECHNOLOGICAL UNIVERSITY**B. Pharmacy Semester- IV Examination June 2010****Subject code: 240004****Subject Name: Pharmaceutical Analysis- II****Date: 18 / 06 / 2010****Time: 10.30 am – 01.30 pm****Instructions:****Total Marks: 80**

- 1. Attempt any five questions.**
- 2. Make suitable assumptions wherever necessary.**
- 3. Figures to the right indicate full marks.**

- Q.1** (a) Define and classify chromatography giving suitable examples. **05**
- (b) What are the retention mechanisms involved in chromatography? Explain any two mechanisms in detail. **06**
- (c) What are the advantages of TLC over paper chromatography? Discuss the Pharmacopoeial applications of column chromatography. **05**
- Q.2** (a) Describe the different theories of chromatography. **06**
- (b) Explain clearly and briefly each of the following terms: **05**
- (i) Standard reduction potential (ii) equivalent conductance
- (iii) Stripping voltametry (iv) Anodic polarographic wave (v) Pulse polarography
- (c) Draw a neat and well-labelled diagram of reference electrode. If the specific conductance of 0.01N HCl (36.5) is 0.00792 mho. What is its equivalent conductance. **05**
- Q.3** (a) Describe the working of dropping mercury electrode. Write a note on applications of polarography. **06**
- (b) Discuss biamperometric titrations in detail. **05**
- (c) Describe in detail the factors affecting conductance. **05**
- Q.4** (a) Define calorimetry. Enlist the different types of calorimetry. **04**
- (b) What is the difference between DTA and DSC. State the applications of both the above methods. **06**
- (c) Write a note on TGA. **06**
- Q.5** (a) Draw a neat and labeled diagram of polarimeter and discuss its applications. **06**
- (b) Describe briefly the working and application of potentiometer. **04**
- (c) What are the advantages of instrumental analysis over volumetric analysis? Describe the process of validation in instrumental analysis. **06**

- Q. 6** (a) Saturated barium sulphate solution has conductance $3.5 \mu\text{S}$ and that of water is $0.46 \mu\text{S}$ in a cell with cell constant 1.1 cm^{-1} . Equi ionic conductance at infinite dilution for $\frac{1}{2} \text{Ba}^{++}=64$ and $\frac{1}{2} \text{SO}_4^{--}=80 \text{ S.cm}^2$. calculate solubility in gram equivalence per lit and %w/v. [Mol.wt of $\text{BaSO}_4 = 234 \text{ Da}$] **04**
- (b) How will you determine the pKa value of acetic acid using pH meter. **06**
- (c) Distinguish the following pairs: **06**
- (i) Stationary phase and mobile phase
 - (ii) Diffusion current and residual current
 - (iii) Optically active compound and optically inactive compound.
- Q.7** (a) Calculate the water equivalence factor F of Karl Fisher reagent. If a 150 mg sample of sodium tartarate dehydrate [230.1] required 25 ml of K.F.R. **04**
- (b) Explain the following statement: **10**
- (i) Chromatography is a method of separation and not analysis.
 - (ii) Equivalent conductance decrease with increase in concentration.
 - (iii) Nitrogen is passed from solution in polarography.
 - (iv) In the measurement of pH, glass and calomel electrodes are essential.
- (c) What is the titer of 0.09N HCl [36.5] solution for NaOH [40]. **02**
