



**Q.1. Answer the following short questions: (15x2=30)**

- i. Give three types of open tubular column in gas chromatography.
- ii. Differentiate between gradient elution and Isocratic elution.
- iii. What are selection criteria for gas in GC?
- iv. What merits and demerits of derivatives by alkylation.
- v. Write three characteristics of ideal reference Electrode.
- vi. Describe principle involved in potentiometric titration.
- vii. Name four indicator electrodes.
- viii. Describe disadvantages of ion selective electrode.
- ix. What is principle of TGA?
- x. Write characteristics of DTA curve.
- xi. What is glass transition temperature?
- xii. Differentiate between heat Flux DSC and power compensated DSC.
- xiii. Name adsorbents used in HPLC column.
- xiv. Describe four advantages of HPLC.
- xv. Describe principle of HPLC.

**Answer the following questions. (3x10=30)**

- Q.2: a) Describe construction and working of Silver-Silver chloride Electrode. (5)**  
**b) Describe potentiometric titration in case of weak acid with strong base with the help of graph. (5)**
- Q.3: a) Describe instrumentation of gas chromatography with the help of diagram (5)**  
**b) How is liquid sample injected in Gas chromatography? (5)**
- Q.4: a) Describe instrumentation of TGA with the help of diagram. (5)**  
**b) Describe various types of column in HPLC. (5)**