



- iv) HPLC stands for
- a) High Problematic Liquid Chromatography
 - b) High Priced Liquid Chromatography
 - c) High Performance Liquid Chromatography
 - d) High Pressure Liquid Chromatography.
- v) Which one of the following is not considered as mobile phase in GC ?
- a) Hydrogen
 - b) Helium
 - c) Oxygen
 - d) Carbon dioxide.
- vi) Retention factor (R_f) in chromatography is used for
- a) quantitative purpose
 - b) qualitative purpose
 - c) preparative purpose
 - d) none of these.
- vii) Nephelometry measures the intensity of as a function of concentration of the disperse phase.
- a) transmitted light
 - b) scattered light
 - c) reflected light
 - d) absorbed light
- viii) When a beam of light is incident on certain substances, they emit visible light. The phenomenon is known as
- a) phosphorescence
 - b) fluorescence
 - c) both (a) and (b)
 - d) none of these.
- ix) The conductance of a solution containing 1 gm equivalent of an electrolyte placed between two sufficiently large electrode placed 1 cm apart is known as
- a) specific conductance
 - b) molecular conductance
 - c) equivalent conductance
 - d) none of these.



- x) Chromatography is
- destructive procedure
 - non-destructive procedure
 - both destructive and non-destructive procedures for resolving a multicomponent mixture
 - none of these.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. $3 \times 5 = 15$

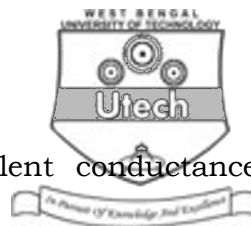
- What are the applications of LCMS in quantitative analysis ?
- Differentiate Gradient and Isocratic system of HPLC ? Briefly explain the theory of separation in an HPLC column.
- What are the advantages of a rotating platinum microelectrode over a dropping mercury electrode ?
- What are the factors on which the efficiency of a column depends ? Explain eddy diffusion.
- What is the principle underlying amperometric titration ?
- Write a note on quality assurance of raw materials in Pharmaceutical industry.

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. $3 \times 15 = 45$

- With the help of a schematic diagram, explain the working of a high performance liquid chromatography. Write a note on application of HPLC in quantitative analysis. $10 + 5$
- Explain the basic principle and instrumentation of Gas Chromatography using a diagrammatic sketch of the instrument. Name the carrier gases and detectors used in GC. Give the applications of this technique in pharmaceutical analysis. $8 + 3 + 4$



10. Define specific conductance and equivalent conductance.

What is the effect of dilution on

- i) conductance
- ii) specific conductance
- iii) equivalent conductance and
- iv) molecular conductance ?

How is conductivity water prepared ? Why is it prepared ?

What are the advantages of conductometric titration ?

5 + 5 + 5

11. Compare the relative sensitivities of the nephelometer and turbidimeter. What is the main criterion for deciding whether turbidimetry or nephelometry should be used in the analysis of a medium containing suspended particles ? Write the basic theory behind turbidimetry or nephelometry. Discuss various applications of turbidimetry and nephelometry.

4 + 1 + 5 + 5

12. Define fluorescence and phosphorescence. Explain the theory behind fluorescence and phosphorescence. What are the factors affecting fluorescence and phosphorescence ? How will you determine vitamin B_1 by fluorimetry ?

3 + 7 + 5

13. What are IQ, OQ, PQ and DQ ? Discuss various validation characteristics for analytical procedures. Write a brief note on ICH guidelines.

4 + 9 + 2