

Note:

1. Attempt all questions.
2. All questions carry equal marks.
3. Draw neat labelled diagrams wherever necessary.
4. Use of log tables and non-programmable calculator is allowed.
5. For Q 2, Q 3 and Q 4 attempt A and B OR C and D

Q.1 Do as directed: (Any fifteen)

Define:

1. Chirality.
2. Racemic Mixture.
3. Titrand.
4. Acid-Base Indicator.
5. Transmittance.
6. Partition coefficient.

Fill in the Blanks:

7. n-butane and 2-methyl-propane are constitutional isomers of each other.

8.  is the Fischer projection formula of tartaric acid.

9. The equivalence point in chemical reaction is when the number of moles of acid becomes equal to the number of moles of the base.

10. Solubility is the ability of a solute molecule to dissolve in a solvent.

11. Cellulose is used as stationary phase in paper chromatography.

12. Photometer detector is used in colorimeter.

State True or False:

13. Configuration is the relative position of the atoms in a molecule that can be changed exclusively by cleaving and forming new chemical bonds. True

14. Epimers are mirror images of one another.

15. In gravimetric analysis, a cation is used to form a soluble compound with anion to be determined.
16. Precipitation implies coming out of solution.
17. Tungsten bulb is a source of visible light.
18. Unit of absorbance is M/L.

Name the following:

19. A type of titration based on a reduction-oxidation reaction between the analyte and titrant.
20. Type of chromatography in which mobile phase is more nonpolar than stationary phase.

Q 2 A What are Constitutional isomers? Explain the different types of constitutional isomers with suitable examples. 08

Q 2 B Differentiate between Threo- and Erythro-Compounds with examples. 07

OR

Q 2 C What are the different types of projection formulae? Explain with examples. 08

Q 2 D What are meso-compounds? State their properties. 07

Q 3 A What are Primary Standards? Explain their characteristics and give examples. 08

Q 3 B What is precipitation? What kind of analysis is it used for and how? 07

OR

Q 3 C What is Gravimetric analysis? State its applications. 08

Q 3 D Explain the choice and suitability of indicators used in titrimetry. 07

Q 4 A State and derive mathematical expression of Beer- Lambert's law. 08

Q 4 B What is distribution ratio? How it is used to separate molecules in solvent extraction. 07

OR

Q 4 C Explain principle of thin layer chromatography and give any two applications. 08

Q 4 D Distillation is a separation technique based on volatile nature of molecules- Justify 07

Q.5 Write a short note on: (any three)

- a. Diastereomers.
- b. Fischer Projection formulae.
- c. Titration Errors.
- d. Ascending paper chromatography.
- e. Filters in colorimeter.

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