2 ½ Hours

Total Marks: 75

Note:

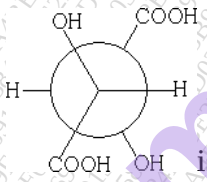
1. Attempt **all** questions.
2. **All questions** carry **equal** marks.
3. Draw **neat labelled diagrams** wherever necessary.
4. Use of **log tables** and **non-programmable calculator** is **allowed**.
5. For **Q 2, Q 3 and Q 4** attempt A and B **OR** C and D.

Q.1 Do as directed: (Any fifteen) **15**

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 _____isomers of each other.
8. 

is the _____projection formula of tartaric acid.
9. The _____ in chemical reaction is when the number of moles of acid becomes equal to the number of moles of the base.
10. _____ is the ability of a solute molecule to dissolve in a solvent.
11. _____ is used as stationary phase in paper chromatography.
12. _____ 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.
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)** **15**

a. Diastereomers.

b. Fischer Projection formulae.

c. Titration Errors.

d. Ascending paper chromatography.

e. Filters in colorimeter.
