Chromatography Viva Questions With Answers

Question.1. What is chromatography ?
Answer. It is technique for rapid and efficient separation of components of a mixture and purification of compounds. It is based on differential migration of the various components of a mixture through a stationary phase under the influence of a moving phase.

Question.2. What is the basis (principle) of chromatographic process ?
Answer. It is based on the differential migration of the individual components of a mixture through a – stationary phase under the influence of a moving phase.

Question.3. What type of solvents are generally employed in chromatography ?
Answer. Generally solvents having low viscosities are employed in chromatography. This is due to the fact that the rate of flow of a solvent varies inversely as its viscosity.

Question.4. Name some chromatographic techniques.
Answer. Paper chromatography, column chromatography, thin layer chromatography, gas chromatography.

Question.5. What are the moving and stationary phases in paper chromatography?
Answer. Water absorbed on cellulose constituting the paper serves as the stationary phase and organic solvent as moving phase.

Question.6. What is meant by the term developing in chromatography?
Answer. During chromatography, if the components to be separated are colourless, then these separated components on chromatogram are not visible. Their presence is detected by development, which involves spraying a suitable reagent (called developing reagent) on the chromatogram, or placing the chromatogram in iodine chamber, when various components become visible. This process is called developing of chromatogram.

Question.7. How does the liquid rise through the filter paper?
Answer. By means of capillary action.

Question.8. What is meant by the term R_f value?
Answer. R_f (retention factor) of a substance is defined as the ratio of the distance moved up by the solute from the point of its application to the distance moved up by the solvent from the same point.

Question.9. On what factors does the R_f value of a compound depend?
Answer.

1. Nature of the compound.
2. Nature of the solvent.
3. Temperature.

Question.10. Give the biochemical uses of chromatography.
Answer. It helps in the separation of amino acids, proteins, peptides, nucleic acids, etc.

Question.11. Name the scientist who introduced chromatographic technique.
Answer. Russian botanist M. Tswett (1906).

Question.12. What are the advantages of chromatography over other techniques?
Answer.

1. It can be used for a mixture containing any number of components.
2. Very small quantities of the substances can be effectively detected and separated from a mixture.

Question.13. What- is loading (or spotting)?
Answer. The application of the mixture as a spot on the original line on the filter paper strip or addition of mixture to the column, is called loading (or spotting).

Question.14. What are the essential characteristics of the substance used as a developer?
Answer.

1. It should be volatile.
2. It should impart colour to the different spots.
3. It should not react with various compounds which are being separated.