Chemistry Practical Class 12 Separation of pigments from extracts of leaves and flowers by paper chromatography and determination of Rf values Viva Questions with Answers

Q1. What is chromatography?
Answer: Chromatography is a process of rapid and efficient separation of components of a mixture. It is based on the principle that different components migrate at a different rate through a stationary phase under the influence of a moving phase.

Q2. Name a few chromatographic techniques?
Answer: Paper chromatography, gas chromatography, column chromatography, and thin-layer chromatography are a few chromatography techniques.

Q3. How does a liquid rise through a filter paper?
Answer: The liquid rises through a filter paper through capillary action.

Q4. What are the moving and stationary phases in paper chromatography?
Answer: Water absorbed on cellulose constituting the paper serves as the stationary phase. In contrast, the organic solvent serves as the moving phase.

Q5. What type of solvents are used in chromatography?
Answer: Solvents with less viscosity are used in chromatography because the rate of flow of a solvent is inversely proportional to its viscosity.

Q6. What is the primary principle of chromatography?
Answer: Chromatography is based on the principle that different components migrate at a different rate through a stationary phase under the influence of a moving phase.

Q7. What is meant by the development of a chromatogram?
Answer: During chromatography, if the components to be separated are colourless, they are not visible. Their presence is identified by spraying a suitable reagent on the chromatogram or placing the chromatogram in an iodine chamber.
This process is called the development of a chromatogram.

Q8. What do you understand by the term Rf value?
Answer: Rf is the abbreviation of the retention factor. It is the ratio of the distance travelled by the compound to the distance travelled by solvent.
Rf = Distance travelled by the compound / Distance travelled by the solvent.

Q9. What are the various factors that affect the compound's Rf value?
Answer: Rf value is dependent on the following factors.

- Nature of the solvent
- Nature of the compound
- Temperature

Q10. What is an iodine spot?
Answer: The spot on the chromatography paper strip where the acetone extract of leaf is to be loaded is called the iodine spot.

Q11. What are the advantages of chromatography over other techniques?
Answer: A few benefits of chromatography techniques are mentioned below.

- We can use it to separate high complex mixtures.
- We can work it even on a low sample volume.
- Mixtures separated by chromatography can be collected individually.

Q12. What are the applications of chromatography?
Answer: There are lots of applications of chromatography.

- We can use chromatography to monitor air quality and test drinking water.
- It is used in the pharmaceutical and food industries.
- It is used in chemical fingerprinting and species identification.
- It is used to detect drugs in urine or other body fluid.