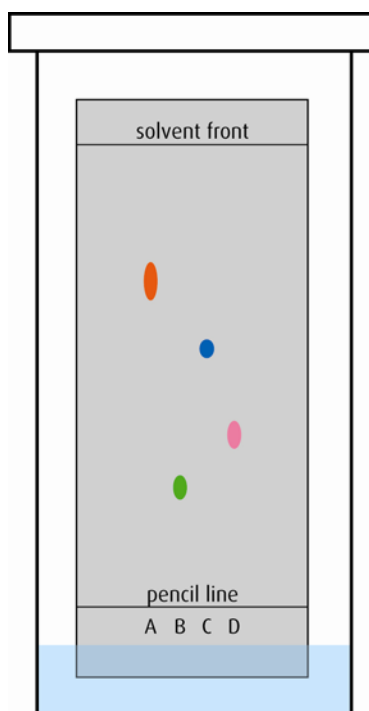


Exemplar exam question – Option A

- 1 **a** State **two** reasons for using chromatography. [2]
- b** State the stationary phase in paper chromatography and thin-layer chromatography. [2]
- c** The diagram shows the results of a paper chromatography experiment.
 Determine the R_f value for substance A. [2]

**Commentary**

- a** Two of: [2]
- to separate the components of a mixture
 - to determine purity
 - to determine the identity of the components of a mixture
 - to determine the amounts of the various components present in a mixture.

It is important, when asked for two reasons, that **only two** reasons are given. If extra reasons are given and are incorrect then any marks already awarded could be cancelled out.

- b** Paper: water on the fibres [1]
 TLC: silica/alumina/cellulose [1]

It is important with paper chromatography to stress that the stationary phase is the water and not the paper.

c Distances measured on this diagram are 61 mm to the solvent front and 43 mm to spot A. [1]

Important points here are that the distance must be measured from the pencil line to the **middle** of the spot and from the pencil line to the solvent front.

$$R_f = \frac{43}{61} = 0.70 \quad [1]$$

Two significant figures are appropriate. Some tolerance will be allowed on the answer but it is usually not very much and distances must be measured accurately. R_f has no units.