

(Chromatography (Rf values, separation techniques))

Q1.a)(2018)

crush the flower

use more flowers

Q1.b)(2018)

the start line is drawn in ink

uses water as the solvent

Q1.c)(2018)

flower A contains a single pure
colour

the colour in flower C is a
mixture

Q1.d)(2018)

$$\frac{7.2}{9.0}$$

$$= 0.8$$

Q2.a)(2020)

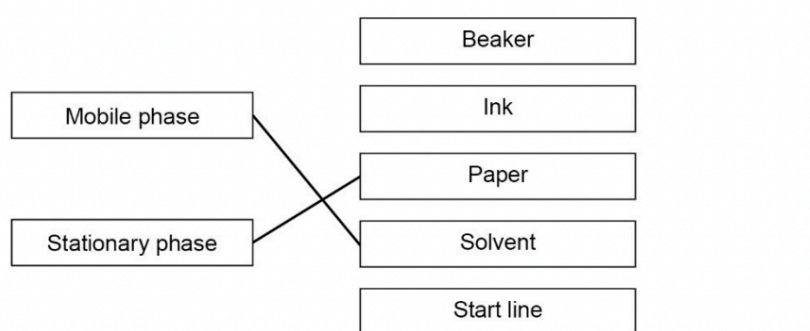
$$\frac{2.7}{9.0}$$

$$= 0.3$$

Q2.b)(2020)

C and D

Q2.c)(2020)



additional line from a box on the left negates the mark for that box

Q2.d)(2020)

17 : 3

Q2.e)(2020)

formulation

Q2.f)(2020)

the R_f value would stay the same

Q3.a)(2021)

Method

- draw (pencil) start line on (chromatography) paper
- place spot of food colouring on start line
- use of suitable solvent
- place solvent in beaker / container
- place (chromatography) paper in beaker / container
- so (chromatography) paper is in solvent
- but solvent is below start line
- use a lid
- wait for solvent to travel up the (chromatography) paper (until near top)
- mark solvent front
- dry the (chromatography) paper

Measurements

- measure distance between start line and centre of spot
- measure distance between start line and solvent front
- use of measurements to determine R_f value

Q3.b)(2021)

different solvent used

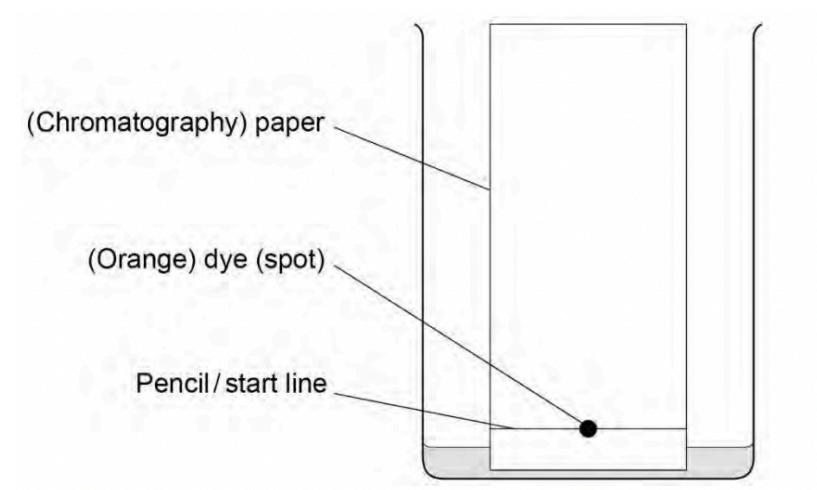
Q3.c)(2021)

paper

Q4.(2022)

- **draw pencil start line**
- **place spot of ink on start line**
- name suitable solvent
- place solvent in beaker
- **place paper in solvent so solvent is below start line**
- use a lid
- **allow solvent / dyes to travel up paper** (until near top)
- dry
- count spots

Q5.a)(2023)



Q5.b)(2023)

left the investigation for too long

Q5.c)(2023)

(there is) more than one spot

or

(there are) three spots

Q5.d)(2023)

(distance moved by red spot) =
1.8 (cm)

(distance moved by solvent) =
7.2 (cm)

$$(R_f) = \frac{1.8}{7.2}$$

$$= 0.25$$

Q5.e)(2023)

dark yellow spot

Q6.a)(2024)

(drew start line in) ink

ink runs / smudges / dissolves

OR

a pencil should be used (to draw
the start line) (1)

so that the ink does not run /
smudge / dissolve (1)

Q6.b)(2024)

2

Q6.c)(2024)

(dye)

A

(reason)

(dye) **A** travelled the same
distance as a spot from
(substance) **Y**

or

(dye) **A** has the same R_f value
as a spot from (substance) **Y**

Q6.d)(2024)

(dye) **D** is insoluble (in water)

Q6.e)(2024)

$$(R_f =) \frac{2.4}{6.0}$$

$$= 0.4$$

Q6.f)(2024)

solvent