Mark schemes

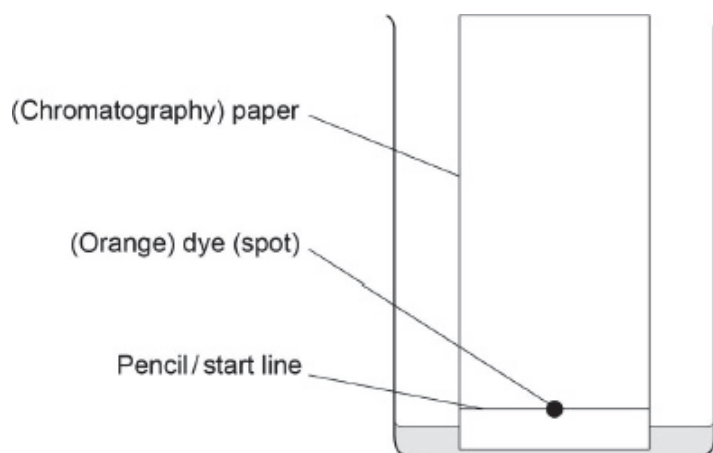## Q1.

(a)　(drew start line in) ink

1

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)

1

(b)　2

1

(c)　(dye)
A

1

(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**

*allow (dyes) **B, C,** and **D** did not travel the same distance as either spot from (substance) **Y***

*allow (dyes) **B, C,** and **D** do not have the same R_f value as either spot from (substance) **Y***

MP2 is dependent upon the award of MP1

1

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

*allow there is no attraction between (dye) **D** and water*

1

(e)

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

1

= 0.4

ignore units

1

(f)　solvent

1

[9]

Q2.

(a)

3

(b)   left the investigation for too long

1

(c)   (there is) more than one spot
       or
       (there are) three spots

1

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

             allow a value in the range 1.6 to 2.0 (cm)

1

       (distance moved by solvent) = 7.2 (cm)

             allow a value in the range 7.1 to 7.3 (cm)

1

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

             allow correct use of incorrectly determined
             distance(s)

1

       0.25

1

(e)   dark yellow spot

1

[10]