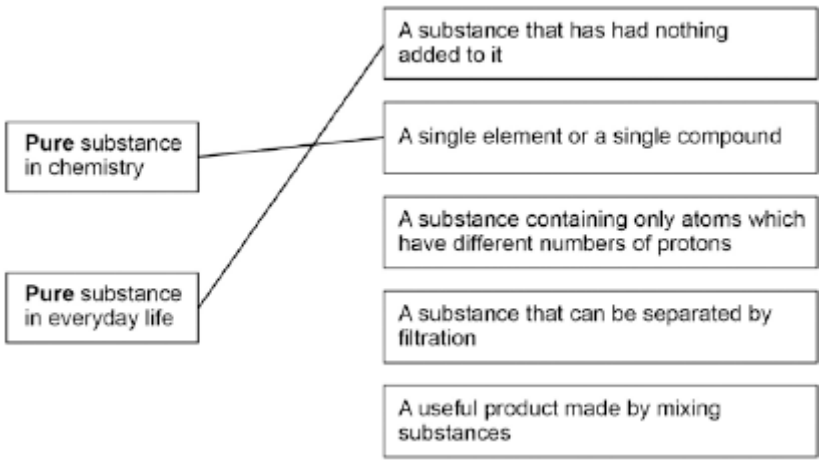
M1.(a) Air

2

Steel

1

(b)



Allow **1** mark for the correct meanings linked to context but incorrect way around

1

1

(c) Damp litmus paper turns white

1

(d) Iron(III)

1

[6]

M2.(a) The start line was drawn in ink

1

The water level was above the spots

1

(b) 3

1

(c) **A**

1

(d) *(distance moved by dye A)* 38 (mm)

allow values in range 36-40

1

(distance from start line to solvent front)
102 (mm)

allow values in range 101-103

1

$\frac{38}{102}$

allow ecf from Table 1

1

0.37254 …

allow values in range 0.35 – 0.39

1

0.37

1

*accept 0.37 with no working shown for **5** marks*

[9]

M3.(a) additive

1

(b) colour 3 is a mixture of colours 1 and 2

any **two** from:

accept E-number or additive instead of colour

ignore comments about height / level

1

- colour 1 is made up of only one colour / dye
- colour 2 is made up of only one colour / dye
- colour 3 is made up of two colours / dyes
  or
  more colours (than colours 1 and 2)

2

[4]

M4. (a) (i) chromatography

1

(ii) 3 / three

1

(iii) the colour / E104 is not on the same level as any of the colours in the food

accept E104 does not match

1

(b) (i) to improve the appearance of the food

ignore adds yellow / colour

ignore taste / flavour

1

(ii) further / or different tests (for harmful effects) **or** obtain more evidence (that it is harmful)

allow do a survey / study

1

[5]

M5. (a) to improve the appearance of the drink

1

because they are permitted colours

1

(b) (i) chromatography

1

(ii) three / 3

1

(iii) because one colour / spot / E102 matched

1

because the other / two colours / spots / E104 and E110 did not match

if no other mark awarded allow because the drink did not contain E104 and E110 ***or*** *because the drink contained E102 for* ***1*** *mark*

accept only E102 matched for ***2*** *marks*

1

[6]

M6. (i) any **two** from:

- **A** has four colours(*)
- **B** has three colours(*)

(*) if first two bullets not stated
*accept **A** has more colours (than **B**) **or B** has less colours (than **A**) for **1** mark only*

- **A / B** have two colours the same
- **B** has one different colour

2

(ii) chromatography

1

[3]

M7. drinks / colours B **and** C are safe

1

drinks / colours A **and** D are not safe

*accept a <u>pair</u> of one safe colour **and** one not safe colour identified for **1** mark*

*accept A, B, C and D all contain one safe colour for **1** mark*

ignore references to shading

1

[2]