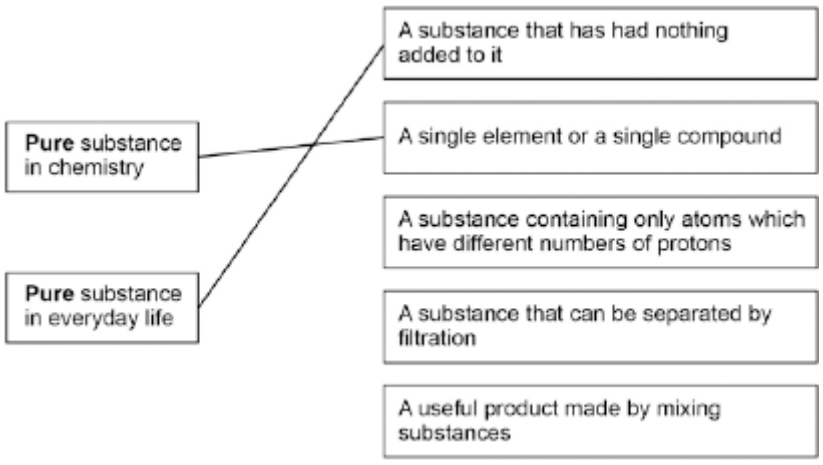
M1.(a) Air

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) (i) so there are no impurities

accept no other chemicals / not contaminated

allow to get the correct result

1

(ii) high melting point

1

unreactive

1

(iii) yellow-orange

1

(b) (i) bubbles / fizz / effervescence

ignore any named gas

1

(ii) milky

1

(c) fast(er)

1

small(er) amount

1

[8]

M3.(a) (i) yellow

1

(ii) lilac

1

(b) (bubble through) limewater

1

cloudy

allow white / milky

1

(c) (i) silver nitrate solution

1

(ii) white

1

[6]

M4. (a) (i) fermentation

1

(ii) cloudy

accept milky / white

1

there is carbon dioxide / CO_2

accept calcium carbonate forms

1

allow a (white) solid / precipitate forms

(b) (i) (the amount of ethanol used) increases (from 1970) to 1989

*if no year(s) or incorrect year(s) indicated then max **1***

correct year(s) only needs to be indicated once to gain full marks

accept values in range 1987-1992

1

then it decreases from 1989 (to 2000)

1

(ii) any **one** from:

- Brazil had more oilfields
- cost of crude oil had decreased
- cost of ethanol / sugar (cane) had increased
- demand for ethanol / sugar (cane) had increased
- availability of ethanol / sugar (cane) had decreased

  accept availability of land to grow sugar (cane) had decreased
- climate change affects growing sugar (cane)

1

[6]

M5.(a) (i) react

allow neutralise

allow bubbles / fizzes

accept produces gas / CO_2F

ignore rises

1

(ii) stop <u>reacting</u> / <u>producing</u>

stops on its own is insufficient allow stop working / bubbling / fizzing

1

the (hydrochloric) acid / (calcium) carbonate is used up

accept because the (calcium) carbonate has neutralised the (hydrochloric) acid

OR

have been used up (1)

the <u>graph line</u> becomes horizontal / levels out (1)

OR

stays the same / no change (1)

ignore reference to graph line

no further reaction (1)

1

(iii) bubble the gas through limewater / calcium hydroxide solution

allow (add) limewater

test must be correct to gain result mark

1

(the solution) goes cloudy

allow milky

1

(b) advantage > Quarrying limestone provides building materials, employment and new road links

1

disadvantage > Quarrying limestone releases dust, and lorries release carbon dioxide from burning diesel fuel

1

[7]

M6. (a) (i) milky

1

carbonate ions

1

(ii) red

1

(b) (i) smaller

1

(ii) The answer obtained is closer to the true value

1

[5]

M7. (a) stop them reacting

owtte

1

(b) (i) fizzing / bubbles / effervescence

owtte

1

(ii) (g)

1

(iii) limewater

1

(c) yellow

1

(d) (i) barium chloride

1

(ii) white

1

(iii) eg don't see what is being bought

ignore references to cost

or

a comment about quality / purity
eg may be impure / contaminated

1

[8]

M8. (a) (i) get wrong coloured flame/result owtte

or

to get the correct result

allow contaminated

1

(ii) high melting point

1

unreactive

1

(iii) yellow-orange

1

(b) (i) bubbles / fizz / effervescence

ignore any named gas

1

(ii) milky

1

(c) fast(er)

1

small(er) amount

1

[8]

##

(a) F

accept indium / In

1

(b) C

accept sodium / Na

1

(c) A

accept hydrogen / H / H_2

1

[3]