

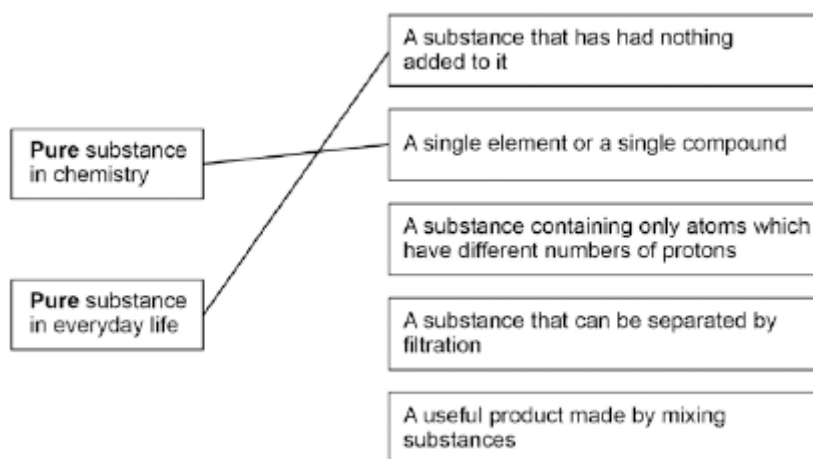
M1.(a) Air

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 1
accept milky / white
- there is carbon dioxide / CO₂ 1
accept calcium carbonate forms
- allow a (white) solid / precipitate forms*
- (b) (i) (the amount of ethanol used) increases (from 1970) to 1989 1
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
- 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

M5.(a) (i) react

allow neutralise
allow bubbles / fizzes
accept produces gas / CO₂F
ignore rises

1

(ii) stop reacting / producing

*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 graph line 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 / H₂

1

[3]