

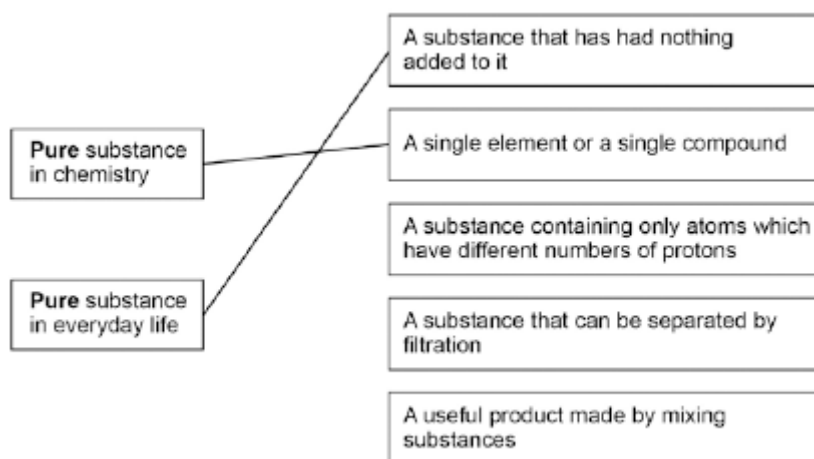
M1.(a) Air

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 <i>accept milky / white</i>	1
	there is carbon dioxide / CO <sub>2</sub> <i>accept calcium carbonate forms</i>	1
	<i>allow a (white) solid / precipitate forms</i>	
(b)	(i) (the amount of ethanol used) increases (from 1970) to 1989 <i>if no year(s) or incorrect year(s) indicated then max 1</i> <i>correct year(s) only needs to be indicated once to gain full marks</i> <i>accept values in range 1987-1992</i>	1
	then it decreases from 1989 (to 2000)	1
	(ii) any <b>one</b> from:	
	<ul style="list-style-type: none"> <li>• Brazil had more oilfields</li> <li>• cost of crude oil had decreased</li> <li>• cost of ethanol / sugar (cane) had increased</li> <li>• demand for ethanol / sugar (cane) had increased</li> <li>• availability of ethanol / sugar (cane) had decreased <i>accept availability of land to grow sugar (cane) had decreased</i></li> <li>• climate change affects growing sugar (cane)</li> </ul>	1

M5.(a) (i) react

*allow neutralise*  
*allow bubbles / fizzes*  
*accept produces gas / CO<sub>2</sub>F*  
*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]

<p><b>M7.</b> (a) stop them reacting <i>owtte</i></p>	<p>1</p>
<p>(b) (i) fizzing / bubbles / effervescence <i>owtte</i></p>	<p>1</p>
<p>(ii) (g)</p>	<p>1</p>
<p>(iii) limewater</p>	<p>1</p>
<p>(c) yellow</p>	<p>1</p>
<p>(d) (i) barium chloride</p>	<p>1</p>
<p>(ii) white</p>	<p>1</p>
<p>(iii) eg don't see what is being bought <i>ignore references to cost</i></p> <p><b>or</b></p> <p>a comment about quality / purity eg may be impure / contaminated</p>	<p>1</p>

[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<sub>2</sub>*

1

[3]