

QUESTIONSHEET 1

(a)	(i)	change pH to 7	1
	(ii)	burette/measuring cylinder/syringe	1
(b)	(i)	1 g	1
	(ii)	30/10 = 3 g	1 1
	(iii)	concentration of sodium hydroxide	1
(c)		6 g in 100g ⇒ no	1 1
			TOTAL 8

QUESTIONSHEET 2

(a)	1.	magnesium	
	2.	zinc	
	3.	nickel	
	4.	copper	2
		4 correct answers score 2 marks	
		2 correct answers score 1 mark	
(b)	(i)	hydrogen	1
	(ii)	burning splint/ignite/burn the gas squeaky pop	2
(c)	(i)	magnesium chloride	1
	(ii)	ionic	1
	(iii)	the forces of attraction/bonding between the ions are very strong large amount of energy required to break them	2
			TOTAL 9

QUESTIONSHEET 3

- (a) (i) sodium + oxygen \rightarrow sodium oxide 1
- (ii) Na_2O 1
- (iii) solid 1
- (iv) purple 1
- (b) (i) O_2
(g) 2
- (ii) accept answer between 4 and 6 1
- (iii) any two from corrodes buildings/statues/metalwork
kills/damages trees
causes lakes to become acidic/kills animal and plant life 2
- TOTAL 9**

QUESTIONSHEET 4

- (a) (i) covalent 1
- (ii)
-
- 8 electrons around N scores 1 mark
correct bonding pairs scores 1 mark 2
- (iii) forces between the molecules/ particles are weak
these forces are easily overcome 2
- (b) (i) particles move/ have kinetic energy
randomly/in all directions
or
diffusion takes place
from high concentration to low concentration 2
- (ii) molecules/particles of ammonia are lighter 1
- (iii) ammonium chloride 1
- TOTAL 9**

QUESTIONSHEET 5

(a)	(i)	carbon dioxide	1
		limewater turns milky/white/cloudy	1
	(ii)	calcium sulphate	1
(b)	(i)	increases	1
	(ii)	greater surface area	1
		particles collide more often	1
(c)	(i)	hydrogen	1
	(ii)	burning splint/produces squeaky pop	2
	(iii)	manufacture of ammonia/manufacture of margarine	1
TOTAL			10

QUESTIONSHEET 6

(a)		One mark each for: yellow colourless yellow blue	4
(b)	(i)	bromophenol blue	1
	(ii)	bromophenol blue and thymol blue	2
TOTAL			7

QUESTIONSHEET 7

(a)		calcium hydroxide	1
(b)		8 5 10 5 125 = 10 000 g/10 kg	1 1
(c)		calcium oxide is corrosive/harms skin	1
(d)	(i)	$\text{Ca(OH)}_2 + 2\text{HNO}_3 \rightarrow \text{Ca(NO}_3)_2 + 2\text{H}_2\text{O}$	2
	(ii)	1 mol Ca(OH)_2 neutralises 2 mol HNO_3	1
		74 g Ca(OH)_2 neutralises 126 g HNO_3	1
		37 g Ca(OH)_2 is needed to neutralise 63 g HNO_3	1
TOTAL			9

QUESTIONSHEET 8

- (a) $\text{SO}_2 + \text{Cl}_2 + 2\text{H}_2\text{O} \rightarrow \text{H}_2\text{SO}_4 + 2\text{HCl}$ 2
(correct formulae 1, balancing 1)
- (b) 71g Cl_2 react with 64 g SO_2 1
so 71 mg Cl_2 react with 64 mg SO_2 1
and 1 mg Cl_2 reacts with $\frac{64}{71} = 0.9$ mg SO_2 1
- (c) A $10 / 2 = 5$ B $50 / 5 = 10$ 1
B is greater 1

TOTAL 7**QUESTIONSHEET 9**

- (a) (i) 12 1
(ii) lemon juice 1
(iii) 7 1
- (b) red or orange 1
- (c) (i) accept any pH greater than 7 up to 14 1
(ii) neutralisation 1
(iii) water 1

TOTAL 7

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QUESTIONSHEET 10

(a)	green	1
(b)	(i) neutralisation	1
	(ii) reaction is faster/increases rate of the reaction increases surface area/more collisions between particles	2
(c)	(i) 2 CO ₂	2
	(ii) turns milky/white/cloudy	1
	(iii) 24 + 12 + (16 × 3) = 84	1 1
		TOTAL 9

QUESTIONSHEET 11

(a)	(i) burette	1
	(ii) neutralisation	1
	(iii) 7	1
(b)	(i) hydrogen ion/H ⁺	1
	(ii) hydroxide ion/OH ⁻	1
	(iii) H ⁺ + OH ⁻ → H ₂ O	1
(c)	(i) it is corrosive	1
	(ii) any two from safety goggles plastic gloves wear lab coat use a tray to catch spillage	2
		TOTAL 9

QUESTIONSHEET 12

(a)	(i)	red	1
	(ii)	hydrogen	1
(b)	(i)	blue/purple	1
	(ii)	hydroxide ion	1
(c)	(i)	7	1
	(ii)	sodium sulphate	1
	(iii)	2NaOH 2H ₂ O	2
(d)		a fertiliser	1
			TOTAL 9

QUESTIONSHEET 13

(a)		remains of dead plants became buried action of heat and pressure in the absence of oxygen over millions of years any three marks	3
(b)	(i)	gain of oxygen/loss of hydrogen/loss of electrons	1
	(ii)	sulphur dioxide	1
(c)		$\text{H}_2\text{O} + \text{SO}_2 \rightleftharpoons \text{H}_2\text{SO}_3$	2
(d)		limestone is a carbonate acids react with carbonates	1 1
			TOTAL 9

QUESTIONSHEET 14

(a)	A	1
(b)	B	1
(c)	C	1
(d)	F	1
(e)	D	1
(f)	B	1
(g)	A	1
		TOTAL 7

QUESTIONSHEET 15

(a)	MgCO ₃ calcium carbonate fizzes	1 2
(b)	MgCl ₂	1
(c)	(i) add acid slowly/ from a burette until indicator changes colour	1 1
	(ii) as a control/ for a fair test	1
(d)	(i) 0.7 \times 16 = 11.2 p 1.2 \times 11 = 13.2 p 0.6 \times 7.5 = 4.5 p 0.4 \times 22 = 8.8 p	1 1 1 1
	(ii) magnesium hydroxide cheapest no gas given off	1 1 1
		TOTAL 14

QUESTIONSHEET 16

(a)	(i)	does not react with acid	1
	(ii)	substance A very high pH – dangerous	1 1
	(iii)	a carbonate	1
(b)	(i)	seasoning preserving foods	1 1
	(ii)	two from: sodium carbonate, chlorine, sodium, sodium hydrogencarbonate	2
	(iii)	to melt ice	1
			TOTAL 9

QUESTIONSHEET 17

(a)	add universal indicator/litmus red \Rightarrow acid	1 1	
(b)	vinegar is acid ammonia is alkaline they neutralise the stings	1 1 1	
(c)	water dilutes acid washing soda neutralises it	1 1	
			TOTAL 7

QUESTIONSHEET 18

(a)	field C	1	
(b)	A beans, onion, leek	3	
	B beans, leek	2	
	C potato	1	
(c)	field C	1	
			TOTAL 8

QUESTIONSHEET 19

- | | | |
|-----|--|---|
| (a) | MgSO ₄ | 1 |
| (b) | I magnesium & sulphuric acid | 2 |
| | II magnesium carbonate & sulphuric acid | 2 |
| | III magnesium hydroxide & sulphuric acid | 2 |
| (c) | boil off/evaporate the water | 1 |

TOTAL 8**QUESTIONSHEET 20**

- | | | |
|--------|--|---|
| (i) | seven/7 | 1 |
| (ii) | neutral/ neutralised | 1 |
| (iii) | hydrogen/ hydrogen ions | 1 |
| (iv) | carbon dioxide | 1 |
| (v) | ethanoic acid | 1 |
| (vi) | lemons/car batteries/nettles etc | 1 |
| (vii) | sodium hydroxide/potassium hydroxide/ammonia etc | 1 |
| (viii) | corrosive | 1 |

TOTAL 8

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