

# Simple Model; Symbols; RAM; Charge; Isot

## Mark Scheme 1

Level	GCSE (9-1)
Subject	Combined Science: Trilogy - Chemistry
Exam Board	AQA
Topic	5.1 Atomic Structure and the Periodic Table
Sub-Topic	Simple Model; Symbols; RAM; Charge; Isot
Difficulty Level	Bronze Level
Booklet	Mark Scheme 1

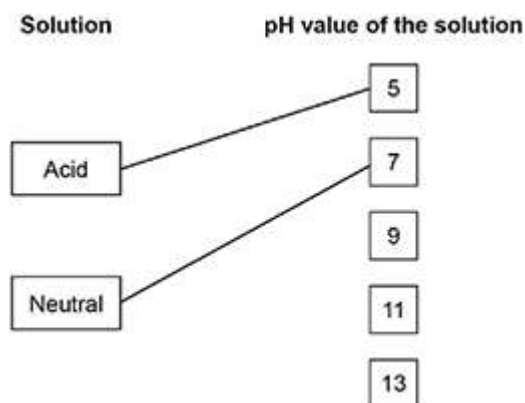
Time Allowed: 60 minutes

Score: /56

Percentage: /100

Grade Boundaries:

M1.(a)



*extra lines from solution negate the mark*

2

(b)  $H^+$

1

(c) 3

1

(d) Neutralisation

1

(e) sodium sulfate

1

(f) Add indicator to sodium hydroxide solution

*allow add indicator to sulfuric acid*

1

Add sulfuric acid (gradually)

*allow add sodium hydroxide solution (gradually)*

1

*allow pH probe*

until indicator just changes (colour)

**or** until universal indicator turns green or shows pH7

1

[9]

M2.(a) Carbon and silicon

1

(b) Atomic number

1

(c) Hydrogen / fluorine / chlorine are not in Group 1 of the periodic table

**or**

Hydrogen and fluorine / chlorine are not in the same group of the periodic table

1

Lithium / sodium / potassium are in Group 1 of the periodic table

1

(d) plum pudding model has a single ball of positive charge and nuclear model has positive charges in the centre / nucleus

1

plum pudding model has electrons in random positions and nuclear model has electrons in fixed positions

1

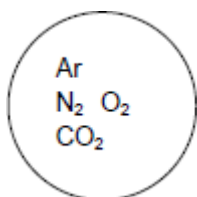
plum pudding model has no nucleus and the nuclear model has a nucleus

1

plum pudding model has no neutrons and the nuclear model has neutrons in the nucleus

1

(e)



1

(f) Covalent bond

1  
[10]

**M3.**(a) Flask

1

(b) Fractional distillation

1

(c) **A** – boiling  
*in this order*

1

**B** – condensing

1

(d) Pentane

1

(e) Formulation

1

(f) the fuel is a pure compound

1

and crude oil is a mixture

**or**

the fuel is made up of four hydrocarbons

*allow crude oil contains a large number of compounds and  
the fuel contains four*

and crude oil could have many more

1

(g)  $(35 + 37 + 37 / 3) = 36.33$

1

36

1

*allow  $(35 + 48 + 37 + 37 / 4 =) 39(.25)$  for 1 mark*

[10]

**M4.(a)** Desalination

1

Sterilising

1

(b) Chloride ion

1

(c) correct bar for  $\text{NO}_3^-$

1

(d) **D**

1

(e) any **two** from:

- people have the right to choose (opinion)
- ethical / moral question
- cannot be tested by experiment

2

(f)  $\frac{1.5}{4.0} \times 100$

1

- (g) the percentage tooth decay increases with age

1

by 4 % for each increasing age group

1

- (h) reduces tooth decay (for all age groups)

1

greater reduction in older people

1

[12]

- M5.(a)** because the mass of an electron is very small  
*do not accept has no mass*

1

- (b) 5 / five

1

- (c) +5

1

(d) 6 1

(because) mass number = no. protons + no. electrons  
*allow atomic number = 5* 1

(so the number of) neutrons = 11 – 5  
*allow mass number – number of protons* 1

(e)  $(16 / 31) \times 100 = 51.6$  1

= 52  
*incorrect sig. figs max 1 mark* 1 [8]

M6.(a) Chemical properties 1

(b) three / 3 1

(c) They all have a stable arrangement of electrons 1

(d) less dense than water  
*allow lighter than water* 1

gas / hydrogen produced

1

an alkali / hydroxide is produced

1

sodium is more reactive than lithium

1

**[7]**