



Rewarding Learning

**General Certificate of Secondary Education
2011–2012**

Science: Double Award (Modular)

**Using Materials and Understanding Reactions
End of Module Test**

Foundation Tier

[GDB01]

MONDAY 21 MAY 2012

9.15 am–10.00 am

**MARK
SCHEME**

- 1 (a) (i) Idea of warning of danger [1]
 (ii) Idea of more eye-catching/idea of ease of recognition if a person cannot read/or does not speak the language [1]
 (b) (i) Symbol D [1]
 (ii) Symbol B [1]

AVAILABLE
MARKS

4

2 (a)

Property	metal	ceramic	fibre	glass
electrical insulator		✓	✓	✓
brittle		✓		✓
malleable				

[1] for each correct column [3]

- (b) (i) Idea that the plastic softens when heated/can be reshaped when heated [1]
 (ii) Polythene/PVC/polystyrene or other correct [1]

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- 3 dissolves [1]
 solution [1]
 solvent [1]
 solubility [1]
 (in this order)

4

- 4 (a) Al^{3+} [1]
 (b) Calcium [1]
 (c) MgSO_4 [1]
 (d) Potassium carbonate [1]
 (e) Symbol equation [1]

5

- 5 compound [1]
 hydrated [1]
 neutron [1]
 neutralisation [1]

4

6 (a) Any **two** of
hard/unreactive/sonorous/durable/shiny or other correct
accept idea of malleable
(2 × [1]) [2]

(b) Any **two** of
unreactive, low density, cheap, easily moulded or other correct
(2 × [1]) [2]

7

Element	Number of protons	Number of neutrons	Number of electrons	Electronic configuration
boron	5	6	5	2,3
sodium	11	12	11	2,8,1
phosphorous	15	16	15	2,8,5

[4]

8 (a) Diffusion [1]

(b) Idea of particles gaining energy **or** move faster [1]
idea that **more** particles have the energy to change from liquid to
gas leave the liquid and go into the air [1]

9 (a) redox **not** Radox [1]

(b) Hydrogen [1]

(c) $\text{CuO} + \text{H}_2 \longrightarrow \text{Cu} + \text{H}_2\text{O}$
[1] [1] [2]

10 (a) Some substances can be broken down into simpler substances using
electricity [1]. This is called electrolysis and can happen when the
substance **is molten** [1]/**or in solution** [1]. (Any order)
Accept dissolved **or** aqueous [3]

(b) The **negative electrode** [1]

(c) Any suitable metal, e.g. aluminium [1]

AVAILABLE MARKS

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		AVAILABLE MARKS
11 (a)	Idea of the same volume of water sample used [1]	
(b)	Idea that the more soap solution needed to produce a permanent lather the harder the water or the less soap solution needed to form a permanent lather the softer the water not idea of time [1]	
(c)	Temporary [1] Produces scale when heated/wastes soap/may lead to blocked hot water pipes/idea that scale can form on heating elements of kettles reducing efficiency/or other suitable, e.g. formation of scum with soap [1]	4
12	Candidate indicates by drawing, by use of electronic configurations or by statement the following points: Calcium loses two electrons [1] Chlorine atoms each gain 1 electron [1] 2:1 ratio [1] Ionic bond/electrostatic attraction/oppositely charged ions [1] [4]	4
Total		50