



Rewarding Learning

General Certificate of Secondary Education
2011–2012

Science: Double Award (Modular)

Using Materials and Understanding Reactions
End of Module Test

Higher Tier

[GDB02]

THURSDAY 19 MAY 2011, MORNING

**MARK
SCHEME**

		AVAILABLE MARKS	
1	(a) Diffusion	[1]	3
	(b) Idea that particles have energy from the heat [1] Idea of fast particle movement [1]	[2]	
2	(a) 3	[1]	4
	(b) potassium hydrogen carbonate	[1]	
	(c) 5	[1]	
	(d) $\text{Mg}(\text{NO}_3)_2$	[1]	
3	(a) sodium oxide, calcium oxide YES nitrogen dioxide, carbon dioxide NO 4 correct = [2]; 2 or 3 correct = [1]	[2]	4
	(b) (i) water	[1]	
	(ii) neutralisation	[1]	
4	(a) C	[1]	4
	(b) E	[1]	
	(c) Any 2 of A, B and D	[1]	
	(d) sodium	[1]	
5	(a) magnesium 2, 8, 2 [1] chlorine 2, 8, 7 [1]	[2]	5
	(b) magnesium loses 2 electrons [1] chlorine gains 1 electron [1] Idea that 2 chlorine atoms are needed [1] Idea of sharing loses first two marking points	[3]	
6	(a) copper sulphate	[1]	3
	(b) pure copper	[1]	
	(c) goes down	[1]	

			AVAILABLE MARKS
7	(a) correct sharing [1] correct numbers of electrons [1] second mark depends on first	[2]	4
	(b) carbon dioxide [1] chlorine [1]	[2]	
8	(a) galvanising	[1]	5
	(b) zinc is more reactive than iron [1] it corrodes first [1] (protecting the iron from rusting)	[2]	
	(c) hydrated [1] iron (III) oxide [1]	[2]	
9	(a) nylon or polythene	[1]	5
	thermosoftening plastics have no crosslinks [1] this makes them flexible [1] second mark dependent on first	[2]	
	(b) thermosetting they are transparent	[1] [1]	
10	(a) atoms can easily slide/move into new positions	[1]	5
	(b) delocalised electrons [1] carry the current/charge [1]	[2]	
	(c) bonds are strong	[1]	
	(d) atoms in aluminium are spaced further apart than they are in lead allow idea of aluminium having a lower relative atomic mass	[1]	
11	(a) 48.5–49.5 °C	[1]	4
	(b) 88 (+/- 0.5)–67 (± 0.5) [1] correct difference i.e. 20–22 [1]	[2]	
	(c) NaCl	[1]	
12	(a) ions cannot move in the solid state/does not conduct electricity when solid	[1]	4
	(b) $2\text{Br}^- [1] \longrightarrow \text{Br}_2 + 2\text{e}^- [1]$	[2]	
	(c) bromine gas and/or lead fumes are toxic	[1]	
Total			50