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]	
	(b)	Idea that particles have energy from the heat [1] Idea of fast particle movement [1]	[2]	3
2	**(a)**	3	[1]	
	(b)	potassium hydrogen carbonate	[1]	
	(c)	5	[1]	
	(d)	$Mg(NO_3)_2$	[1]	4
3	**(a)**	sodium oxide, calcium oxide YES nitrogen dioxide, carbon dioxide NO 4 correct = [2]; 2 or 3 correct = [1]	[2]	
	(b)	**(i)** water	[1]	
		(ii) neutralisation	[1]	4
4	**(a)**	C	[1]	
	(b)	E	[1]	
	(c)	Any 2 of A, B and D	[1]	
	(d)	sodium	[1]	4
5	**(a)**	magnesium 2, 8, 2 [1] chlorine 2, 8, 7 [1]	[2]	
	(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]	5
6	**(a)**	copper sulphate	[1]	
	(b)	**pure** copper	[1]	
	(c)	goes down	[1]	3

				AVAILABLE MARKS
7	**(a)**	correct sharing [1] correct numbers of electrons [1] second mark depends on first	[2]	
	(b)	carbon dioxide [1] chlorine [1]	[2]	4
8	**(a)**	galvanising	[1]	
	(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]	5
9	**(a)**	nylon or polythene	[1]	
		thermosoftening plastics have no crosslinks [1] this makes them flexible [1] second mark dependent on first	[2]	
	(b)	thermosetting they are transparent	[1] [1]	5
10	**(a)**	atoms can easily slide/move into new positions	[1]	
	(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 [1] allow idea of aluminium having a lower relative atomic mass		5
11	**(a)**	48.5 − 49.5 °C	[1]	
	(b)	88 (+/− 0.5) − 67 (± 0.5) [1] correct difference i.e. 20 − 22 [1]	[2]	
	(c)	NaCl	[1]	4
12	**(a)**	ions cannot move in the solid state/does not conduct electricity when solid	[1]	
	(b)	$2Br^-$ [1] $\longrightarrow Br_2 + 2e^-$ [1]	[2]	
	(c)	bromine gas and/or lead fumes are toxic	[1]	4
		Total		**50**