



Rewarding Learning

General Certificate of Secondary Education
2010–2011

Science: Single Award (Modular)

Materials and their Management
Module 4

Foundation Tier

[GSC41]

FRIDAY 25 FEBRUARY 2011, MORNING

**MARK
SCHEME**

			AVAILABLE MARKS	
1	(a)	plastic/packaging, ceramic/tiles, metal/iron 3 correct [2], 1 correct [1]	[2]	6
	(b)	copper/electrical conductor, plastic easy to mould, ceramic/very hard, linen/long strands of fibre 4 correct [3], 2 correct [2], 1 correct [1]	[3]	
	(c)	cotton	[1]	
2	(a) (i)	D, A, E, B any two in correct position [1]	[2]	7
	(ii)	measuring cylinder	[1]	
	(iii)	lather which lasts a given time, e.g. 30 seconds	[1]	
	(b)	Advantages helps brewing beer strong teeth 5 correct [3], 3/4 [2], 1/2 [1]	Disadvantages leaves stains forms boiler scale forms kettle fur [3]	
3	(a) (i)	4 correct [2], 3/2 correct [1]	[2]	7
	(ii)	increased	[1]	
	(b) (i)	carbon and hydrogen	[1]	
	(ii)	oxygen	[1]	
	(iii)	water	[1]	
	(iv)	causes global warming/greenhouse effect	[1]	
4	(a) (i)	pentane	[1]	11
	(ii)	$56 \times 10 [1] = 560(\text{kJ})$	[2]	
	(iii)	119 [1] ignore (– sign)	[1]	
	(b)	temperature, accept heat [1], light [1]	[2]	
	(c) (i)	watermarks [1], metal strip [1], hologram bar coding serial numbers [1]	[3]	
	(ii)	shine UV light on note [1], glows or idea of fluorescence [1]	[2]	

			AVAILABLE MARKS
5	(a)	1. bottle banks, door step collection and segregation [1]	
		2. collection and transport [1]	
		3. reprocessing of cullet [1]	
		4. furnace/remoulding [1]	
		any three	[3]
	(b)	(i) not broken down [1] by microbes [1]	[2]
		(ii) advertising [1], bins for recycling [1]	[2]
			7
6	(a)	(i) oil is heated [1], different fractions boil at different temperatures [1], vapours rise up column and separate [1], vapours are condensed [1]	[3]
			(ii) heating oil
	(b)	double-bond in ethene breaks [1] <i>many molecules</i> are (chemically) joined [1] into long chains [1]	[2]
		any two	
	(c)	use renewable fuels smokeless fuel/filters on chimneys/use public transport	[1]
			7
		Total	45