



Rewarding Learning

**General Certificate of Secondary Education
2010–2011**

Science: Single Award (Modular)

Materials and their Management

Module 4

Higher Tier

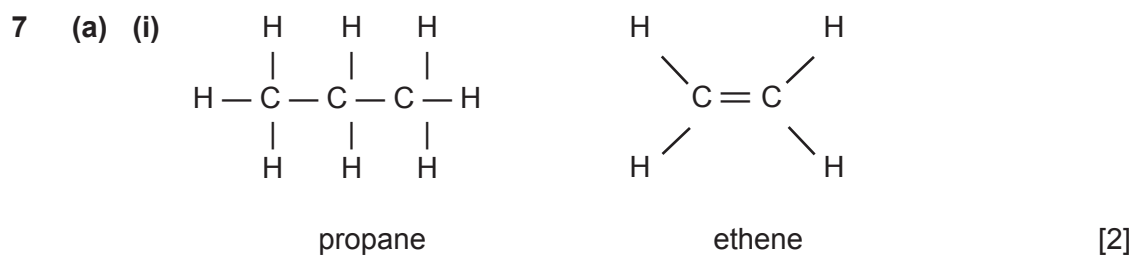
[GSC42]

FRIDAY 12 NOVEMBER 2010, AFTERNOON

**MARK
SCHEME**

			AVAILABLE MARKS		
1	(a)	(i) tar	[1]	7	
		(ii) the boiling point of the fraction increases/gets higher	[1]		
		(iii) heating oil/fuel/in lamps	[1]		
	(b)	(i) made up of carbon and hydrogen [1] only [1]	[2]		
		(ii) carbon dioxide/CO ₂	[1]		
		(iii) leads to global warming/produces greenhouse gases	[1]		
2	(a)	(i) C	[1]	8	
		(ii) B	[1]		
		(iii) B	[1]		
		(iv) same volume of water/soap solution/boiled for 2 minutes	[1]		
	(b)	(i) calcium sulphate/magnesium sulphate/ calcium chloride/magnesium chloride or correct formulae	[1]		
		(ii) calcium carbonate [1], water [1] or correct symbol	[2]		
		(iii) add washing soda/ion exchange/distillation/sodium carbonate	[1]		
		3	(a) combines the properties of 2 or more materials [1] to give a more useful material [1]		[2]
			(b) plastic		[1]
(c)	(i) 610 – 420 = 190		[1]		
	(ii) very strong/light/flexible Any two	[2]	6		
4	(a)	(i) light [1] temperature/heat [1]	[2]	5	
	(b)	(i) use of very small particles [1] to produce new beneficial properties in materials [1]	[2]		
		(ii) cost/health worries	[1]		
5	(a) MgCl [1], 2HO ₂ [1]	[2]	4		
	(b) CaCO ₃ [1] + H ₂ O [1]	[2]			

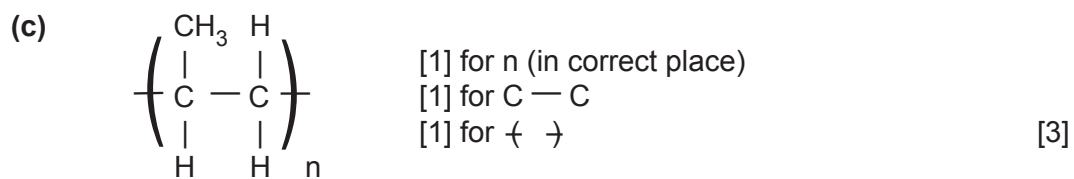
- 6 (a) cleaned using (hydrochloric) acid [1]
 imparts no colour to the flame/heat in flame [1]
 put flame test rod in acid then metal salt/powder [1]
 one safety procedure [1] [4]
- (b) that the paint contained a sodium salt [1]
 and not a calcium salt [1] [2]
- (c) Emission [1]



(ii) fuel/heating [1]

(b) (i) starch [1]

(ii) less problems in landfill sites [1]



Total

8

45

**AVAILABLE
MARKS**

7