



Rewarding Learning

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

Science: Single Award (Modular)

**Materials and their Management
Module 4**

Higher Tier

[GSC42]

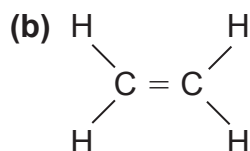
FRIDAY 20 MAY 2011, AFTERNOON

**MARK
SCHEME**

| | | | AVAILABLE MARKS |
|---|---|-----|-----------------|
| 1 | (a) potassium chloride [1], magnesium sulphate [1] | [2] | 7 |
| | (b) two from magnesium sulphate/magnesium chloride/calcium nitrate | [2] | |
| | (c) measuring cylinder/pipette/burette | [1] | |
| | (d) calcium carbonate [1], carbon dioxide [1] accept <i>correct</i> formula | [2] | |
| 2 | (a) 5 points correct [2], 4 points [1] line [1] | [3] | 6 |
| | (b) answer from graph | [1] | |
| | (c) cut down on levels CO ₂ /greenhouse effect/global warming/ non-renewable | [1] | |
| | (d) important in making polymers/polythene/plastics | [1] | |
| 3 | (a) it is convenient to use | [1] | 7 |
| | (b) saves landfill sites or other suitable | [1] | |
| | (c) fines/charges for dumping | [1] | |
| | (d) broken down [1] by microbes [1] saves separations from waste in plant [1] | [3] | |
| | (e) for gardens | [1] | |
| 4 | (a) composite | [1] | 9 |
| | (b) use carbon powder [1], dust gently [1] brush off gently with brush [1] use sellotape to obtain fingerprint [1] any 3 | [3] | |
| | (c) invasion of privacy [1] lost/stolen [1]/identity theft [1] idea of mistake [1] any 2 | [2] | |
| | (d) lilac [1], sodium [1], brick red [1] | [3] | |

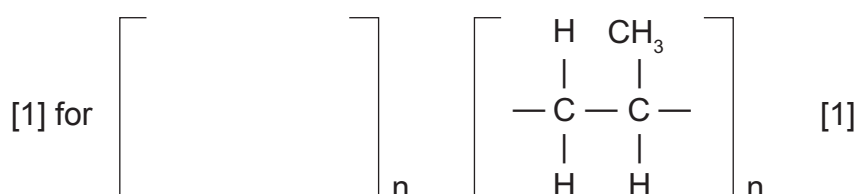
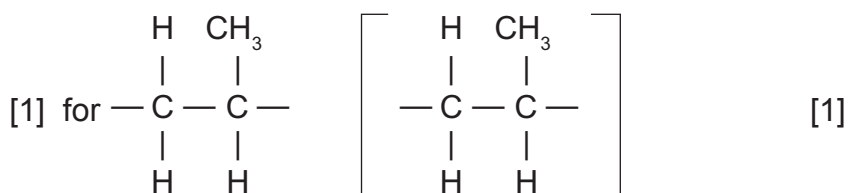
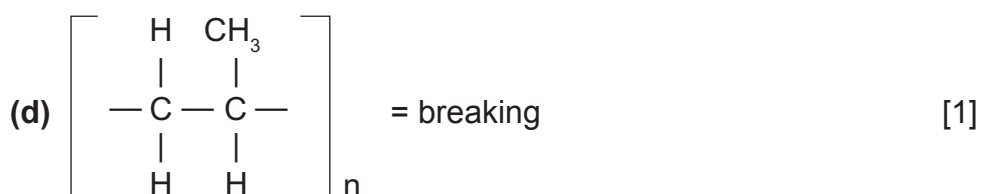
- 5 (a) gas syringe/inverted measuring cylinder [1]
- (b) $16.6 - 9.6 = 7$
 $9.6 + 3.5 = 13.1$ [1]
- (c) (i) no more bubbles CO_2 /total volume of gas remained constant [1]
- (ii) $5\frac{1}{2} \rightarrow 6$ minutes (accept $13 \rightarrow 13.2$) [1]
- (d) repeat results/take more readings [1]
- (e) CaCO_3 [1], CaCl_2 [1] [2]
- (f) calcium ethanoate [1]

- 6 (a) carbon [1], hydrogen [1] [1]



all C – H bonds correct [1]
 C = C bond correct [1] [2]

- (c) small molecules joint [1] to form a long chain molecule [1] [2]



[3]

Total

AVAILABLE
MARKS

8

8

45