

**CAMBRIDGE INTERNATIONAL EXAMINATIONS**

Cambridge International General Certificate of Secondary Education

## **MARK SCHEME for the October/November 2014 series**

### **0620 CHEMISTRY**

**0620/63**

Paper 6 (Alternative to Practical), maximum raw mark 60

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- 1 (a) suitable collection vessel, e.g. syringe / measuring cylinder, burette, test tube or gas jar in trough of water or by downward delivery (1) label (1) [2]
- (b) tap / separating / dropping funnel (1) [1]
- (c) reaction is fast at room temperature (1) [1]  
**allow:** heat not needed / reacts anyway
- (d) limewater (1) [2]  
turns milky / cloudy / white (1)
- 2 (a) mass of beaker + contents column completed correctly  
all 11 correct (2)  
10 correct (1)  
9 or fewer correct (0)  
total loss column correct (1) [3]  
**note:** if all readings are not to 1dp, max 2
- | time / min | mass / g | total loss / g |
|------------|----------|----------------|
| 0          | 95.0     | 0.0            |
| 1          | 93.0     | 2.0            |
| 2          | 92.0     | 3.0            |
| 3          | 91.3     | 3.7            |
| 4          | 91.2     | 3.8            |
| 5          | 90.5     | 4.5            |
| 6          | 90.3     | 4.7            |
| 7          | 90.1     | 4.9            |
| 8          | 90.0     | 5.0            |
| 9          | 90.0     | 5.0            |
| 10         | 90.0     | 5.0            |
- (b) points plotted correctly including origin (2)  
smooth curve missing anomalous point (1) [3]
- (c) gas / carbon dioxide evolved / formed / escapes / given off (1) [1]
- (d) (i) result at 4 minutes / fifth point / 91.2 / 3.8 g [1]  
(ii)  $4.2(\text{g}) \pm 0.1$  (1) [1]
- (e) sketch with steeper graph than original (1)  
starting at origin levelling at same height (1) [2]

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- 3 (a) carbon / graphite (1) [1]
- (b) bulb lights / fizzing / bubbles (1) [1]  
**ignore:** names of electrodes  
**allow:** solution gets paler / changes colour / green colour fades
- (c) copper (1)  
negative electrode / cathode (1) [2]
- (d) electrolysis (1) [1]
- 4 (c) table of results
- initial temperature boxes completed correctly (1)  
21, 22, 22, 19
- final temperature boxes correctly completed (1)  
41, 16, 11, 32
- differences correct (1)  
20, -6, -11, 13 [3]
- (e) suitable scale – 2 cm is 5 or 10 °C (1)  
all 4 bars at correct levels (2),  
3 correct (1)  
2 or fewer correct (0)  
clear unambiguous labels, HJKL or 1, 2, 3, 4 (1) [4]
- (f) to remove impurities / clean (1) [1]
- (g) (i) Experiment 2 / J (1) [1]
- (ii) Experiments 2 / J **and** 3 / K (1)  
temperature decreased / energy or heat is absorbed (1) [2]
- (h) (i) (-)5.5(°C) (1) [1]
- (ii) (+)6.5(°C) (1) [1]
- (iii) half amount of solid used (1) [1]
- (i) room temperature / initial temperature / 22 °C (1)  
reaction finished / all dissolved (1) [2]

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(j) carbonate (1)  
carbon dioxide (1)  
acid (1) max [2]

(k) repeat (1)  
compare results / average results / mean (1) [2]

**5 tests on solution N**

(e) appearance colourless (1) [1]  
pH 11–14 (1) [1]

(f) colourless / no change (1)  
white (1)  
precipitate (1) [3]

(g) litmus paper turns blue (1)  
pungent smell (1) [2]

(h) (i) hydrogen / H<sub>2</sub> (1) [1]

(ii) ammonia (1) [1]

(i) hydrochloric acid (2) [2]  
acid or chloride only, 1 mark.

**6 (a)** add water (1)  
**allow:** named organic solvent  
crush / grind stir / mix / heat plant material / description of (1)  
filter (1)  
extract each plant material separately / named apparatus (1) [4]

(b) add extract to acid (1)  
add extract to alkali (1)  
different colours shows suitable indicator (1) [3]  
**allow:** named colours