

CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge International General Certificate of Secondary Education

MARK SCHEME for the May/June 2015 series

0620 CHEMISTRY

0620/63

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

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| Question | Answer | Marks | Guidance |
|-----------------|---|--------------|----------------------------------|
| 1(a) | (delivery) <u>tube</u> ; | 1 | |
| 1(b) | arrow under wool; arrow under tile; | 2 | |
| 1(c)(i) | to provide large surface area; | 1 | A catalyst/increase rates |
| 1(c)(ii) | to absorb/contain/hold the paraffin; | 1 | |
| 1(d) | cracking; | 1 | |
| 1(e) | bromine water would turn colourless/react with alkenes; | 1 | |

| Question | Answer | Marks | Guidance |
|-----------------|--|--------------|------------------|
| 2(a) | 0, 35, 50, 57, 61, 59, 65, 65 All 8 = 3 marks 7 = 2 marks 6 = 1 mark; | 3 | |
| 2(b) | all 8 points plotted within half a small square = 3 marks 7 points plotted within half a small square = 2 marks 6 points plotted within half a small square = 1 mark; best fit smooth line; | 4 | |
| 2(c)(i) | at 150 s/59 cm ³ of hydrogen; | 1 | |
| 2(c)(ii) | 63–65; cm ³ ; | 2 | |
| 2(d)(i) | use a fridge/ice bath; | 1 | A freezer |
| 2(d)(ii) | curve below original; towards same final level; | 2 | |

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|---------------|--|-----------------|--------------|
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| Question | Answer | Marks | Guidance |
|-----------------|--|--------------|-----------------|
| 3(a) | brown / red-brown / orange; | 1 | A black |
| 3(b)(i) | oxygen / air used up / reacted; | 1 | |
| 3(b)(ii) | 150 – 125 = 25; 25 / 150 × 100 = 16.7%; | 2 | |
| 3(c) | same results; | 1 | |

| Question | Answer | Marks | Guidance |
|-----------------|---|--------------|---------------------------------------|
| 4(e) | 24, 23, 22, 25 initial temperature boxes completed correctly; 28, 59, 19, 44 maximum temperature boxes completed correctly; 4, 36, –3, 19 temperature changes completed correctly; | 3 | |
| 4(f) | appropriate scale for y axis; all temp differences correctly plotted = 2 marks three temp differences correctly plotted = 1 mark; clearly labelled; | 4 | highest temperature at least half-way |
| 4(g)(i) | exothermic; | 1 | A neutralisation |
| 4(g)(ii) | (D is a) carbonate / carbon dioxide formed; | 1 | |
| 4(h) | experiment 2 / solid E; | 1 | |
| 4(i)(i) | acid neutralised / pH increased; (so solid G is a) base / alkali; | 2 | |
| 4(j) | room temperature / initial temperature from table; reaction over; | 2 | |

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|---------------|--|-----------------|--------------|
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| Question | Answer | Marks | Guidance |
|-----------------|---|--------------|-----------------|
| 4(k) | temperature change lower / halved; volume of acid larger / doubled; | 2 | |
| 4(l) | source: measuring cylinder / thermometer / heat losses; improvement: use burette / digital thermometer / insulate / lag; | 2 | |

| Question | Answer | Marks | Guidance |
|-----------------|---|--------------|-----------------|
| 5(c) | red brown; precipitate; no change; | 3 | |
| 5(d) | red brown precipitate; | 1 | |
| 5(e) | no change / no precipitate / no reaction / nothing; | 1 | |
| 5(f) | white; precipitate; | 2 | |
| 5(g) | hydrated / water; | 1 | |
| 5(h) | not a halide / not a named halide; | 1 | |
| 5(i)(i) | ammonia / NH ₃ ; | 1 | |
| 5(i)(ii) | ammonium / NH ₄ ⁺ ; | 1 | |

| Question | Answer | Marks | Guidance |
|-----------------|---|--------------|-----------------|
| 6 | weighed piece of ice; melting method e.g. put into hot water; collection and measurement of gas e.g. measuring cylinder; filled with water; e.g. gas syringe (2 marks); measure volume of gas; calculate volume in 1000g; | 6 | |