CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the October/November 2012 series

0620 CHEMISTRY

0620/63 Paper 6 (Alternative to Practical), maximum raw mark 60

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1 (a) (i) set B (1) **accept:** D or B and D [2]

(ii) arrow positioned anywhere towards liquid (1)

(b) effect bung shoots out/test-tube cracks/shatters/explodes (1) [2]

reference to pressure (1)

(c) diagram showing delivery tube into trough with water and collecting vessel (1) [2]

labelled (1) **note:** gas syringe = 0

2 (a) hydrogen (1) [1]

(b) volumes completed correctly [3]

0 18 30 40 43 54 58 60

–1 for each incorrect
ignore extra decimal place e.g. 43.00

(c) points plotted correctly (3) [4]

smooth curve (1)

–1 for each incorrect

(d) (i) point at 4 minutes (1) off curve owtte (1) [2]

(ii) 47 – 49 (1) ignore units [2]

indication on graph (1)

(e) magnesium powder/higher temperature/more concentrated acid/catalyst used (1) [2]

faster/more surface area/more collisions (1)

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3 **(a)** initial readings [3]

0.0 17.5 8.9

final readings

23.8 40.7 32.3 (2), –1 any incorrect

differences

23.8 23.2 23.4 (1)

(b) titration 2 and 3/23.2 and 23.4 (1) [2]

average = 23.3 (1)

allow: ecf for calculation of average

(c) pipette/burette (1) [1]

(d) blue to red/pink (1) [1]

(e) **(i)** half as much acid S/twice as much HC*l* (1) [1]

(ii) $y = 2$ (1) [1]

4 tests on filtrate

(a) **(i)** white (1) precipitate (1) with excess does not dissolve/clear (1) [3]

(ii) no precipitate/very slight precipitate/no reaction [1]

(iii) white (1) precipitate (1) [2]

(c) carbon dioxide/CO_2 (1) [1]

(d) lead/silver (1) carbonate (1) [2]

5 **(a)** Temperature boxes completed correctly (2), –1 for each incorrect [3]

25 31 37 42 48 48 48

Temperature rises calculated correctly (1)

0 6 12 17 23 23 23

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(b) all points correctly plotted (3), –1 for any incorrect [5]

smooth straight line graphs drawn with a ruler (1)

labels (1)

(c) **(i)** value from graph (1) 0.50 – 0.52 g allow: 0.5 g ignore units [1]

(ii) value from graph (1) 8.5 – 9.0 °C [1]

allow: 9 °C ignore units

(d) 0.8 g (1) [1]

(e) zinc (1) [2]

temperature stays same when increasing amounts added/no more heat given off/no further reaction (1)

(f) no temperature changes (1) does not react owtte (1) [2]

6 any 7 from: [7]

known mass or volume of fats/oil (1)

add organic solvent (1)

shake/stir (1)

add drops of bromine water (1)

until orange colour seen (1)

read and record volume/number of drops (1)

compare oils (1)

conclusion (1)

[Total: 60]

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