

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

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

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- 1 (a) (i)** set B (1) **accept:** D or B and D
- (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
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 HCl (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/CO₂ (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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|---------------|--------------------------------------|-----------------|--|
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(b) all points correctly plotted (3), –1 for any incorrect

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]