CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the October/November 2012 series

0620 CHEMISTRY

0620/62 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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CAMBRIDGE
International Examinations

1 **(a)** flask (1)
measuring/graduated cylinder (1) [2]

(b) **(i)** does not react/unreactive/not reactive enough/below hydrogen in the reactivity series (1) [1]

(ii) magnesium/zinc/iron/aluminium (1) [1]

(c) diagram of (gas) syringe (1)
syringe labelled (1) [2]

(d) lighted splint/flame test (1)
pops (1) [2]

2 **(a)** straight line drawn with a ruler missing point at concentration 0.15 (1)
through origin (1) [2]

(b) 0.56/0.57/0.58 (1)
extrapolation shown (1) [2]

(c) line to right hand side of original and goes through origin (1) [1]

(d) **(i)** catalyst/to speed up the reaction (1) [1]

(ii) slower/owtte (1)
less surface area (1) [2]

3 **(a)** spatula (1) **not:** spoon [1]

(b) nitric/HNO_3 (1) [1]

(c) **(i)** toxic/poisonous/harmful gas given off or named toxic gas (1) [1]

(ii) idea of ensuring constant mass (1)
reaction complete (1) [2]

(d) **(i)** spillage (1)
inaccurate weighing (1)
loss by spitting (1)
reaction not complete/owtte (1)
some solid left in beaker (1) [2]

4 **(a)** Table of results for Experiment 1
temperature boxes completed correctly (3), –1 any incorrect

23 27 31 34 36 35 34 33 32 [3]

(b) Table of results for Experiment 2
temperature boxes completed correctly (3), –1 for each incorrect

23 28 32 35 37 38 39 38 36 [3]

(c) all points correctly plotted ±1/2 small space(3) –1 for any incorrect
best fit smooth line graphs (2)
labels (1) [6]

(d) value from graph ,29–30 °C (1)
shown clearly (1) [2]

(e) exothermic (1) [1]

(f) **(i)** experiment 2/acid H (1) [1]

(ii) acid (H) is more concentrated/stronger (1) [1]

(g) room/initial temperature from table/23 °C (1)
reaction finished/owtte (1) [2]

5 **(a)** green (1) [1]

(b) green (1)
precipitate (1) [2]

(c) green precipitate (1) [1]

(d) no reaction/no precipitate/no change/no observation/nothing (1) [1]

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

(i) ammonia (1) [1]

(j) transition metal/cobalt (1) ignore copper
nitrate (1) [2

6 **(a)** test (1) e.g. add named indicator/marble chip/magnesium
result (1) e.g. ethanoic acid changes colour of indicator/ethanoic acid effervesces [2]
allow: lighted splint (1) ethanol burns (1)

(b) any 6 from:
weigh coal/equal masses/equal amounts (1)
crush (1)
heat (1)
in a fume cupboard (1)
pass through potassium manganate (1)
time to colourless (1)
repeat with other coal (1)
compare/conclusion (1) [6]

[Total: 60]