CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge International General Certificate of Secondary Education

MARK SCHEME for the October/November 2014 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.

Cambridge will not enter into discussions about these mark schemes.

Cambridge is publishing the mark schemes for the October / November 2014 series for most Cambridge IGCSE®, Cambridge International A and AS Level components and some Cambridge O Level components.

1 **(a)** **(i)** U-tube (1)
gas jar (1)
not: measuring cylinder

(ii) arrow inserted under shaded solid mixture (1) [1]

(b) less dense / lighter than air (1)
reacts / dissolves in water (1) [2]

(c) reaction occurs (1)
ammonia is alkaline / neutralisation / hydrogen chloride (1)
ammonium chloride formed (1) [3]
note: correct equation scores (3)

(d) red litmus (1)
turns blue (1) [2]
allow: pH / Universal Indicator (1)
turns blue / purple (1)

2 **a solution of chlorine in water**
named indicator (1)
bleaches / turns white (1) [2]
do not allow: halide test

sulfuric acid
named indicator (1)
result (1)
or
add barium nitrate (1)
white precipitate (1)
or
carbonate (1)
fizzes (1) [2]
allow: other valid alternatives

hexene
bromine (water) (1)
decolourises (1) [2]
allow: lighted splint (1)
ignites (1)

limewater
pass carbon dioxide (1)
milky / cloudy (1) [2]
allow: named indicator (1)
correct result (1)

3 **(a)** spatula (1)
do not allow: spoon

(b) **(i)** sulfuric (1) [1]

(ii) reacts quickly at room temperature (1) [1]
allow: heat not needed / reacts anyway

(c) **(i)** sulfuric acid / the acid (1) [1]

(ii) solution will be acidic / not neutral / impure salt (1) [1]

(d) **(i)** crystals appear / description of using glass rod (1) [1]
not: precipitate / evaporate to dryness

(ii) lose water / dehydrate (1) [1]
allow: reference to anhydrous
ignore: break down of crystals / powder forms

4 **(a)** **Table of results**
temperature boxes completed correctly (3)
all 7 correct (3)
6 correct (2)
5 correct (1)
4 or fewer correct (0)

26 35 45 54 56 52 48 [3]

(b) all points correctly plotted (3)
all 7 correct (3)
6 correct (2)
5 correct (1)
4 or fewer correct (0)
two intersecting straight line graphs drawn with a ruler (1) [4]

(c) **(i)** value from graph, 50 (°C) (1) ± 1
shown clearly (1) [2]

(ii) value from graph, 34 ± 1 (1)
unit cm^3 (1)
shown clearly (1) [3]
note: if tie-line not to peak of graph, max 1, for unit.

(d) sodium hydroxide (1)
less volume used than acid / volume of acid used was greater (1) [2]

(e) exothermic (1)

(f) room / initial temperature / 26 °C (1)
ignore: 20 °C
reaction finished owtte (1) [2]

(g) repeat (1)
compare results (1) [2]
allow: take mean / average (1)
ignore: references to insulation

5 tests on solution **A**

(a) yellow / brown / orange (1) [1]
allow: combination of above colours
do not allow: red, but **allow:** red-brown

(b) (orange / red) <u>brown</u> (1)
allow: rusty
precipitate (1) [2]

(c) (orange / red) brown precipitate (1) [1]

(d) white precipitate (1) [1]

(i) aluminium (1)
sulfate (1) [2]
list principle applies here

6 **(a)** filter solution (1)
wash with water (1)
dry (1) [3]
do not allow: evaporate to dryness

(b) known volume of oven cleaner (1)
add named acid (1)
with named apparatus (1)
indicator (1)
observe colour change (1)
note volume added (1)
repeat with other sample (1)
valid comparison (1) max [6]