



Cambridge International Examinations
Cambridge International General Certificate of Secondary Education (9–1)

CHEMISTRY

0971/05

Paper 5 Practical Test

For Examination from 2018

MARK SCHEME

Maximum Mark: 40

Specimen

From 2018 the mark scheme design/layout has improved.
The content and marks remain the same.

This document consists of **4** printed pages.

mark scheme abbreviations

;	separates marking points
/	alternative responses for the same marking point
not	do not allow
allow	accept the response
ecf	error carried forward
avp	any valid point
ora	or reverse argument
owtte	or words to that effect
<u>underline</u>	actual word given must be used by candidate (grammatical variants excepted)
()	the word / phrase in brackets is not required but sets the context
max	indicates the maximum number of marks
Any [number] from:	accept the [number] of valid responses
note:	additional marking guidance

- 1 (a) volume, at time = 0 given; [1]
 volume correctly completed in ascending order; [1]
 allow: maximum of 2 consecutive identical numbers
- (b) volume, at time = 0 given; [1]
 volume correctly completed in ascending order; [1]
 allow: maximum of 2 consecutive identical numbers
- (c) appropriate scale on x-axis and y-axis **and** labels **and** units; [1]
 note: scale should cover at least half of grid
 points plotted to \pm half a small square accuracy;; [2]
 note: >12 correct = 2, 10–12 correct = 1, <10 correct = 0
 two labelled smooth line graphs **and** must plot volume at $t = 0$; [1]
- (d) Experiment 1 / acid **X** **and** statement that acid **X** is stronger or more concentrated / ora [1]
- (e) value from graph to \pm half a small square accuracy **and** indication shown on graph [1]
- (f) correct calculation of rate; [1]
 allow: ecf on (d)
 cm^3/s / cm^3s^{-1} / cm^3 per s; [1]
 allow: sec
- (g) Any two from:
 magnesium has an oxide coating;
 rubbing exposes magnesium to the acid / removes oxide coating;
 gives true rate / owtte; [2]
- (h) advantage: convenient / easy / quick to use; [1]
 disadvantage: reference to inaccurate measurement; [1]
- (i) graduated pipette / burette / gas syringe / mass of magnesium rather than strips / repeats
 and take average / take more frequent readings / suitable method for reducing initial loss of
 gas **and** any suitable comment on improved accuracy; [1]
 note: explanation must relate to reason
- 2 (a) (i) white precipitate [1]
 (ii) no change / precipitate remains [1]
- (b) no precipitate / slight (white) precipitate [1]

- (c) Any two from:
effervescence / fizz / bubbles;
(damp) pH paper blue / purple;
ammonia smell; [2]
- (d) calcium; [1]
nitrate; [1]
- (e) yellow / brown / orange colour when hot; [1]
colour fades / goes white when cool; [1]
- (f) (i) effervescence / bubbles / fizz; [1]
limewater turns milky; [1]
- (ii) white precipitate; [1]
precipitate dissolves in excess / colourless solution formed; [1]
- (iii) white precipitate; [1]
precipitate dissolves in excess / colourless solution formed; [1]
- (g) zinc; [1]
allow: aluminium dependent on (f)(iii)
carbonate; [1]
- 3 (a) Universal indicator / pH paper; [1]
pH of 3–6 / yellow / orange; [1]
note: any suitable test with appropriate result
- (b) Any four from:
chromatography;
description of applying food colouring to paper;
use of solvent;
results / number of spots;
compare results to known sample / reference to R_f value; [4]
note: marks can be obtained from a labelled diagram