

IGCSE Chemistry 4335 4437 03 07

Mark Scheme (Results)

Summer 2007

IGCSE

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IGCSE CHEMISTRY 4335 4437, MAY 2007 MARK SCHEME

Paper 3

1. (a) A thermometer
B stop clock
C pipette
D measuring cylinder
E funnel 5
- (b) C / pipette
D / measuring cylinder 2
(answers in either order)
- (c) E / funnel 1

Total 8 marks

2. (a) any three from: amount/moles of metal (allow mass)
particle size/form/surface area of metal
concentration of copper(II) sulphate
volume of copper(II) sulphate
starting temperature 3
(reject amount copper sulphate)
- (b) (i) before: 27
after: 32.5 2
- (ii) 5.5 (*ecf*) 1
- (c) 5.2/5.17 (or greater number sig figs, 13.0/13 (both needed)
(*ecf*)
both numbers to 1 dp 2
- (d) iron
repeats not similar / most different / furthest apart / widely spaced /
far apart 2
- (e) bars drawn for iron, lead, nickel and zinc 1
all bars correct height (-1 per error) cq on table 2
- (f) (i) zinc
biggest temp change 2
- (ii) no reaction / silver is not more reactive than copper 1
- (iii) some/two (or three) did not change temperature/
has same temp change/did not react 1
Gold + silver (+ copper) did not change temperature/
same temperature change/did not react 1
- (iv) silver nitrate (solution) (ACCEPT any salt of a metal less
reactive than copper regardless of solubility).

Total 18 marks

3. (a) (i) all point plotted correctly (-1 per error) 2
smooth curve 1
(ii) point at (46,65) circled 1
(iii) any one from:
marble chips bigger / surface area less
acid too cool 1
volume of acid too small
mass of chips too small
acid more dilute - or reason that could cause this
- (b) (i) read values from graph: 76 ± 1
cq 45 ± 1 2
(ii) *cq on (i)*: 0.013
0.022 min 2 significant figures 2
(iii) (the higher the temperature the) faster (the reaction) *cq on (ii)* 1
(iv) particles have more energy
move faster / more have energy greater than activation energy
more collisions per second/more frequent collisions/
greater proportions of collisions are successful 3
- (c) reduces/stops heat/energy loss
temperature remains (more) constant/stays at required temperature 2
- (d) any suitable way of cooling flask/contents e.g. an ice bath 1
do not accept ideas based on doing the reaction somewhere
else.

Total 16 marks

4. (a) 25.4
32.8 2
- (b) table shows:
3 suitable column headings with units for mass
data recorded correctly (accept 11 or 11.0 etc)
volume of oxygen calculated correctly (7.8, 9.2, 12.6) 3
- (c) tap of burette open / no iron put in 1
- (d) (i) do not know starting volume of air / burette not calibrated all
the way to end 1
(ii) use a measuring cylinder in place of burette / use tube
calibrated to end 1
(do not accept 'use syringe')
(do not accept ideas of calibrating rest of burette)
measure volume between '50' and the top

Total 8 marks

PAPER TOTAL 50 MARKS