

**MARK SCHEME for the May/June 2011 question paper**  
**for the guidance of teachers**

**0620 CHEMISTRY**

**0620/61**

Paper 6 (Alternative to Practical), maximum raw mark 60

Mark schemes must be read in conjunction with the question papers and the report on the examination.

- Cambridge will not enter into discussions or correspondence in connection with these mark schemes.

Cambridge is publishing the mark schemes for the May/June 2011 question papers for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.

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- 1 (a) beaker (1) [1]
- (b) (i) (arrow) labelled heat in correct position under shaded crystals (1)
- (ii) arrow labelled water in test-tube at or below the level of the ice (1) [2]
- (c) to cool/condense the water or steam/owtte (1) [1]
- (d) physical test **ignore** chemical tests  
boiling point/freezing point (1)  
100/0°C (1) [2]
- 2 (a) any two variables max 2
- volume
  - concentration of acid **allow** amount
  - volume of sodium thiosulfate/total volume of solution
  - temperature
  - printed sheet
  - same size flask
- ignore** reference to pressure/catalyst/surface area/light max [2]
- (b) straight line drawn with a ruler, missing anomalous point but touching all other points (1)  
**not** multiple lines [1]
- (c) any two sensible errors that could be from same category max 2
- qualified measurement error e.g. volume
  - qualified timing error
  - recording error
  - plotting error
  - temperature variation
  - contamination from previous experiment
- not** systematic error max [2]
- (d) 0.056–0.064 range (1) indication on graph (1) [2]
- (e) more particles/particles closer together (1) more collisions (1) [2]
- (f) sketch straight line to the LEFT of the original (1) [1]

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- 3 (a) chromatography (1) [1]
- (b) water (1) [1]
- (c) origin/base line/datum (1) [1]  
**ignore** references to start/initial/pencil
- (d) sweet C has 4 colours (1)  
sweet D has 3 colours (1)  
**allow** C has one more colour/more colours than D for one mark  
2 colours are the same (1) [3]
- 4 Experiment 1
- (a) and (b) initial and final volumes completed correctly (1) 0.0, 32.0
- Experiment 2
- initial and final volumes completed correctly (1) 19.0, 35.0
- all readings in both experiments to 1 decimal place (1)  
both differences correctly calculated (1) [4]
- (c) oxygen(1) [1]
- (d) (i) colourless **not** clear to purple/pink (1) **or** reverse [1]  
(ii) potassium manganate is coloured/owtte (1) [1]  
**accept** is not an acid/alkali reaction
- (e) (i) experiment 1(1) **allow** ecf [1]  
(ii) experiment 1 2× volume of experiment 2 [1]  
(iii) solution B more concentrated/stronger (1) **or** converse  
2× as concentrated (2) [2]
- (f) half value from table result for experiment 2 / 8 (1) cm<sup>3</sup> (1)  
half volume of peroxide used (1) [3]
- (g) advantage easy to use/quick/convenient/fairly accurate (1)  
disadvantage not accurate owtte (1) [2]

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- 5 (a) (ii) colourless (1) **allow** yellow no smell (1) [2]
- (b) (ii) extinguished/owtte (1) [1]
- (d) yellow (1) precipitate (1) [2]
- (e) organic (1) **allow** hydrocarbon  
fuel/alcohol/named alcohol (1) **allow** flammable [2]
- 6 (a) diagram of a filter paper in a funnel (1) label funnel/filter paper (1) [2]
- (b) 0.45, 0.95, 1.40, 1.90, 2.35 and 2.35 (2), –1 for each incorrect up to 2 [2]
- (c) all points plotted correctly (2), –1 for each incorrect point up to 2  
two intersecting straight lines (1) **ignore** origin [3]
- (d) 5 cm<sup>3</sup> (1) **ignore** unit [1]
- 7 (a) appropriate test (1) result (1) [2]  
e.g.  
pH paper or named indicator 11–14 **or** correct colour  
named metal salt solution/ion correct colour precipitate  
ammonium salt/heat ammonia/owtte
- (b) fizzy drinks may be acidic/contain carbon dioxide (1)  
chlorine formed (1) toxic (1) max [2]
- (c) answer connected to health and safety (1) [1]  
**allow** to affect the environment/to clean it
- (d) litmus/pH/UI paper (1) bleached owtte (1) [2]

[Total: 60]