

**MARK SCHEME for the October/November 2010 question paper
for the guidance of teachers**

0620 CHEMISTRY

0620/63

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

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- 1 (a) (i) fractional distillation [1]
- (ii) A = flask (1)
B = condenser (1) [2]
- (b) alkanes are inflammable / risk of fire owtte [1]
- (c) octane [1]
- (d) temperature on the thermometer would rise / be 174°C / pause in the distillation of liquid [1]
- [Total: 6]**
- 2 (a) (i) measuring cylinder [1]
- (ii) reaction will happen / is fast with cold acid [1]
- (b) solid / powder visible / no more solid dissolves / fizzing stops when powder added [1]
not precipitate forms, **not** stops reacting
- (c) diagram of funnel (1) and filter paper within (1) [2]
- (d) heat to crystallising point owtte (1) to prevent loss of water of crystallisation (1) [2]
not heat and leave to cool
- [Total: 7]**
- 3 highest temperatures correct (1) 28, 30, 32, 32
temperature rises correct (1) 7, 9, 11, 11 [2]
- (b) points plotted correctly (2), –1 any incorrect
two straight lines through points, must use ruler (1) [3]
- (c) (i) 0.25 g (1) extrapolation shown (1) [2]
accept extrapolation to zero and subsequent mass
- (ii) all copper sulfate solution used up after 1.5g zinc added / zinc is in excess / owtte [1]
- (d) sketch graph to left of original / steeper slope than original (1)
rising above original (1) [2]
- [Total: 10]**

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- 4** (a) final volumes completed correctly (2)
13.0 and 34.0
- initial volumes completed correctly (1)
0.0 and 8.0
- differences correct (1)
13.0 and 26.0
- 1 if any readings not to 1 dp, –1 if initial and final readings are reversed [4]
- (b) hydroxide [1]
- (c) (i) Experiment 2 / **G** [1]
- (ii) Experiment 2 2× volume experiment 1 [1]
- (iii) alkaline solution **G** more concentrated / stronger (1) or converse
2× as concentrated (2) [2]
- (d) 13 (1) cm³ (1)
half volume of **G** used (1) [3]
- (e) (i) two sources of error
e.g. using a measuring cylinder to measure alkalis / going past end point owtte /
conical flask or measuring cylinder not cleaned [2]
- (ii) two meaningful improvements related to above
e.g. use a pipette / burette / repeat experiment or use different indicator /
clean conical flask or measuring cylinder [2]
- [Total: 16]**
- 5** (c) green (solid) [1]
- (d) (i) green (1) precipitate (1) [2]
- (ii) white (1) precipitate (1) [2]
- (e) ammonia [1]
- (f) ammonium (1) sulfate (1) not a halide (1) [3]
- [Total: 9]**

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6 (a) powder has larger surface area (1) speeds up reaction / more collisions (1) [2]

(b) red / brown / pink [1]

(c) the ice / condensation [1]

(d) test add anhydrous copper sulfate / cobalt chloride paper (1)
result turns blue / pink (1) [2]

[Total: 6]

7 (a) (i) less than 7 [1]

(ii) colour of orange drink obscures indicator colour owtte [1]

(b) chromatography (1)
apply orange drink to paper (1)
use of solvent (1)
comparison of spot heights or R_f with E numbers and/or carotenes (1) [4]

[Total: 6]