

Mark Scheme (Results)

November 2011

GCSE Chemistry
5CH1F/01

Edexcel is one of the leading examining and awarding bodies in the UK and throughout the world. We provide a wide range of qualifications including academic, vocational, occupational and specific programmes for employers.

Through a network of UK and overseas offices, Edexcel's centres receive the support they need to help them deliver their education and training programmes to learners.

For further information, please call our GCE line on 0844 576 0025, our GCSE team on 0844 576 0027, or visit our website at www.edexcel.com.

If you have any subject specific questions about the content of this Mark Scheme that require the help of a subject specialist, you may find our **Ask The Expert** email service helpful.

Ask The Expert can be accessed online at the following link:
<http://www.edexcel.com/Aboutus/contact-us/>

Alternatively, you can contact our Science Advisor directly by sending an email to Stephen Nugus on ScienceSubjectAdvisor@EdexcelExperts.co.uk. You can also telephone 0844 576 0037 to speak to a member of our subject advisor team.

November 2011

Publications Code UG029803

All the material in this publication is copyright

© Pearson Education Ltd 2011

**5CH1F/01 Mark Scheme
November 2011**

| Question Number | Answer | Acceptable answers | Mark |
|------------------|--|---------------------|------------|
| 1 (a) (i) | (help) digestion / kill bacteria / break down food | Allow break up food | (1) |

| Question Number | Answer | Acceptable answers | Mark |
|-------------------|--------|--------------------|------------|
| 1 (a) (ii) | A | | (1) |

| Question Number | Answer | Acceptable answers | Mark |
|--------------------|--------|--------------------|------------|
| 1 (a) (iii) | C | | (1) |

| Question Number | Answer | Acceptable answers | Mark |
|------------------|---|--|------------|
| 1 (b) (i) | An explanation linking two of the following <ul style="list-style-type: none"> • (indigestion is caused by excess) acid (1) • (indigestion tablets) remove / react with / break down / neutralise / increase the pH / change the pH to 7 / form a salt with the acid (1) | Ignore dilute / dissolve Allow { magnesium carbonate / indigestion tablets } are bases (allow alkali) | (2) |

| Question Number | Answer | Acceptable answers | Mark |
|-------------------|--------|--------------------|------------|
| 1 (b) (ii) | C | | (1) |

| Question Number | Answer | Acceptable answers | Mark |
|-----------------|--|--|-------------------|
| 1(c) | <p>An explanation linking two of the following points:</p> <ul style="list-style-type: none"> • calcium carbonate { reacts with / absorbs / neutralises / removes / eliminates } gas(1) • waste gases /acidic gases / sulfur (di)oxide / nitrogen (di)oxide (1) • (these) gases / sulfur (di)oxide/ nitrogen (di)oxide do not escape (into the atmosphere) (1) • so they do not cause acid rain (1) | <p>Allow there will be less acid in the atmosphere</p> | <p>(2)</p> |

| Question Number | Answer | Acceptable answers | Mark |
|-----------------|-----------------------------|----------------------------------|------------|
| 2(a) | fractional distillation (2) | distillation / fractionation (1) | (2) |

| Question Number | Answer | Acceptable answers | Mark |
|-----------------|--------------|--------------------|------------|
| 2(b) | (oil well) C | | (1) |

| Question Number | Answer | Acceptable answers | Mark |
|-----------------|----------|--------------------|------------|
| 2(c) | fuel oil | | (1) |

| Question Number | Answer | Acceptable answers | Mark |
|-----------------|--------|--------------------|------------|
| 2(d) | C | | (1) |

| Question Number | Answer | Acceptable answers | Mark |
|-----------------|---|-----------------------------|------------|
| 2(e) | An explanation including the following: <ul style="list-style-type: none"> (compound of) carbon and hydrogen (1) only (1) | Ignore reference to mixture | (2) |

| Question Number | Answer | Acceptable answers | Mark |
|-----------------|---|--|------------|
| 2(f) | A description including the following <ul style="list-style-type: none"> (pass gas into) { limewater / calcium hydroxide solution } which turns { milky / cloudy / white precipitate } (2) | Allow limewater / calcium hydroxide solution with incorrect or no observation (1) Ignore puts out a flame | (2) |

| Question Number | Answer | Acceptable answers | Mark |
|-----------------|--|---|------------|
| 3 (a) | (contains carbon-carbon) double bond / multiple bond | Allow it is an alkene Allow it decolourises bromine Ignore spare bonds | (1) |

| Question Number | Answer | Acceptable answers | Mark |
|-----------------|--------|--------------------|------------|
| 3(b)(i) | C | | (1) |

| Question Number | Answer | Acceptable answers | Mark |
|-----------------|--------|--------------------|------------|
| 3(b)(ii) | B | | (1) |

| Question Number | Answer | Acceptable answers | Mark |
|-----------------|--|--|------------|
| 3(c) | A description including three of the following: <ul style="list-style-type: none"> • heat the (liquid) paraffin (1) • liquid paraffin vapourised (1) • cracking (1) • heat / hot porous pot (1) • causes thermal decomposition / breaks down (1) • (causes)large molecules / chains (1) • (to produce) small molecules / chains(1) | Allow liquid paraffin turns to a gas (but not if the gas is ethene) | (3) |

| Question Number | Answer | Acceptable answers | Mark |
|-----------------|---|--|------------|
| 3(d) | <p>A description including two of the following points</p> <ul style="list-style-type: none"> • double bond (1) • (double bond) breaks (1) • ethene is a monomer (1) • many ethene (molecules)(1) • join / add / combine / react /bond (1) • to form polymer / (during) polymerisation(1) | <p>Points may be shown on a diagram / equation. Ignore conditions.</p> <p>Allow opens up /becomes a {single bond / alkane}</p> <p>Allow to form a long chain</p> | (2) |

| Question Number | Answer | Acceptable answers | Mark |
|-----------------|--|--------------------|------|
| 3 (e) | <p>An explanation linking two of the following points:</p> <ul style="list-style-type: none"> • non-biodegradable(1) • (therefore) does not rot / does not break down / disintegrate(1) • lasts for a long time / stays there(1) • fills up landfill (sites)(1) • (causes) litter / looks unattractive (1) • causes pollution (1) • can be a danger to wildlife (1) • produces gases when burnt (1) • a gas mentioned as a result of burning linked to the environmental problem it causes eg carbon dioxide is a greenhouse gas, some gases are toxic (1) | | (2) |

| Question Number | Answer | Acceptable answers | Mark |
|-----------------|---------------------------|--------------------|------------|
| 4(a)(i) | nitrogen / N ₂ | Reject nitrate / N | (1) |

| Question Number | Answer | Acceptable answers | Mark |
|-----------------|--------|--------------------|------------|
| 4(a)(ii) | A | | (1) |

| Question Number | Answer | Acceptable answers | Mark |
|-----------------|--------|--------------------|------------|
| 4(b)(i) | C | | (1) |

| Question Number | Answer | Acceptable answers | Mark |
|-----------------|--|--|------------|
| 4(b)(ii) | <p>An explanation linking two of the following points:</p> <ul style="list-style-type: none"> decrease the percentage of /removes / takes in carbon dioxide (1) increase the percentage of /produces / gives out oxygen (1) photosynthesis (1) | <p>Ignore 'breathes in or out'</p> <p>Ignore decreases amount of oxygen</p> <p>Ignore increases amount of carbon dioxide</p> | (2) |

| Question Number | | Indicative Content | Mark |
|-----------------|----------------|---|------------|
| QWC | * 4 (c) | <p>A description including some of the following points:</p> <ul style="list-style-type: none"> • push / pull syringes to move air • volume of air in syringes decreases • oxygen removed from air • copper reacts / joins with oxygen • copper oxide formed • continue until no further change • allow (apparatus) to cool • final reading on gas syringe = $100 - 21 / 79$ (80) cm^3 • because 21 (20) cm^3 of oxygen has reacted | (6) |
| Level | 0 | No rewardable content | |
| 1 | 1 - 2 | <ul style="list-style-type: none"> • a limited description e.g. push in syringe A to pass air over the copper / copper reacts with oxygen • the answer communicates ideas using simple language and uses limited scientific terminology • spelling, punctuation and grammar are used with limited accuracy | |
| 2 | 3 - 4 | <ul style="list-style-type: none"> • a simple description e.g. (hot) copper reacts with oxygen to produce copper oxide / copper oxide is formed and the volume of air decreases • the answer communicates ideas showing some evidence of clarity and organisation and uses scientific terminology appropriately • spelling punctuation and grammar are used with some accuracy | |
| 3 | 5 - 6 | <ul style="list-style-type: none"> • a detailed description e.g. when the air is passed over the (hot) copper, oxygen reacts with copper so the volume of air decrease until there is no further change /by 21 cm^3 • the answer communicates ideas clearly and coherently uses a range of scientific terminology accurately • spelling, punctuation and grammar are used with few errors | |

| Question Number | Answer | Acceptable answers | Mark |
|-----------------|--------|--------------------|------------|
| 5(a)(i) | D | | (1) |

| Question Number | Answer | Acceptable answers | Mark |
|-----------------|---|--|------------|
| 5(a)(ii) | <p>An explanation linking three of the following points</p> <ul style="list-style-type: none"> • dead animals / plants (1) • (dead animals / plants) become covered in sediment (1) • are {squashed / crushed / compacted / pressured} (as layers of sediment build up on top of one another) (1) • long time period (1) • fossils are caused by skeletons / bones / shells / remains (1) | <p>Ignore heat</p> <p>Allow covered in sand / rock / limestone</p> | (3) |

| Question Number | Answer | Acceptable answers | Mark |
|-----------------|---|--|------------|
| 5(b) | <p>An explanation linking the following points</p> <p>(limestone is subject to)</p> <ul style="list-style-type: none"> • heat(1) • and pressure (1) <p>(from the surrounding earth)</p> | <p>Ignore melting / magma / lava</p> <p>Ignore crushed</p> | (2) |

| Question Number | Answer | Acceptable answers | Mark |
|-----------------|--------|--------------------|------------|
| 5(c)(i) | D | | (1) |

| Question Number | Answer | Acceptable answers | Mark |
|-----------------|--|---|------------|
| 5(c)(ii) | calcium carbonate → calcium oxide + carbon dioxide | <p>Ignore heat in equation or on arrow</p> <p>Allow correct formulae instead of words</p> <p>e.g. $\text{CaCO}_3 \rightarrow \text{CaO} + \text{CO}_2$</p> | (1) |

| Question Number | Answer | Acceptable answers | Mark |
|-----------------|---|---|------------|
| 5(d) | A description to include two of the following points <ul style="list-style-type: none"> • bubbles / fizzes (1) • steam (1) • solid swells (1) • (solid) crumbles / breaks up (1) • white powder (1) • (some) of the solid disappears (1) • water goes cloudy / milky (1) | Ignore any colour changes Allow smoke Allow dissolves | (2) |

| Question Number | Answer | Acceptable answers | Mark |
|-----------------|---------------------|--------------------|------------|
| 6(a) | (electrical) wiring | | (1) |

| Question Number | Answer | Acceptable answers | Mark |
|-----------------|--------|--------------------|------------|
| 6(b) | ore(s) | | (1) |

| Question Number | Answer | Acceptable answers | Mark |
|------------------|--|--|------------|
| 6 (c) (i) | <p>An explanation linking two of the following points</p> <ul style="list-style-type: none"> • strength / strong (1) • (to) withstand forces/hold up heavy cable (1) • low cost / cheap(1) | <p>Reject reasons for copper or aluminium being the best metal to use</p> <p>MAXIMUM (1) if include poor resistance to corrosion and/or good conductor of electricity</p> | (2) |

| Question Number | Answer | Acceptable answers | Mark |
|-----------------|--|--|------------|
| 6(c)(ii) | <p>An explanation linking two from the following points</p> <ul style="list-style-type: none"> • low density/light(1) • (so) fewer pylons needed / easier to support (1) • (therefore) low cost/cheap(1) | Ignore any additional properties mentioned in answer | (2) |

| Question Number | Indicative Content | Mark |
|-----------------|--|---|
| QWC | *6(d) | |
| | <p>An explanation including some of the following points</p> <ul style="list-style-type: none"> • copper used for pipes / wiring / vehicles • aluminium used for cans / wires / alloys • steel used for bridges / making stainless steel cutlery etc • recycled metals can be made into something useful • saves (finite) resources / stops the metal (ore) running out • less damage to environment by mining/quarrying • less waste • landfill sites will not fill up as quickly • (some) metals do not corrode /break down • (so)remain a long time in landfill • so fewer landfills needed • less damage to environment from waste • copper waste toxic • less expensive than electrolysis | (6) |
| Level | 0 | No rewardable content |
| 1 | 1 - 2 | <ul style="list-style-type: none"> • a limited explanation e.g. if we throw the metals away they will run out / if we recycle, the metal can be used for something else • the answer communicates ideas using simple language and uses limited scientific terminology • spelling, punctuation and grammar are used with limited accuracy |
| 2 | 3 - 4 | <ul style="list-style-type: none"> • a simple explanation e.g. throwing the metals away will fill up landfill sites, recycling will save mining for new ore • the answer communicates ideas showing some evidence of clarity and organisation and uses scientific terminology appropriately • spelling punctuation and grammar are used with some accuracy |
| 3 | 5 - 6 | <ul style="list-style-type: none"> • a detailed explanation e.g. Recycled metals can be made into other useful products. Metals in landfill sites do not corrode quickly. If new ore is used deposits will eventually run out. • the answer communicates ideas clearly and coherently uses a range of scientific terminology accurately • spelling, punctuation and grammar are used with few errors |

Further copies of this publication are available from
Edexcel Publications, Adamsway, Mansfield, Notts, NG18 4FN

Telephone 01623 467467

Fax 01623 450481

Email publication.orders@edexcel.com

Order Code UG029803 November 2011

For more information on Edexcel qualifications, please visit
www.edexcel.com/quals

Pearson Education Limited. Registered company number 872828
with its registered office at Edinburgh Gate, Harlow, Essex CM20 2JE

Ofqual




Llywodraeth Cynulliad Cymru
Welsh Assembly Government

