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Mark Scheme (Results)

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GCSE

360Science

GCSE Additional Science C2 (5018H/1H)
GCSE Chemistry C2 (5038H/1H)

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Using the Mark Scheme

1. This mark scheme gives you;
   * an idea of the type of response expected
   * how individual marks are to be awarded
   * the total mark for each question
   * examples of responses that should not receive credit.

2. ; separates points for the award of each mark.

3. / means that the responses are **alternatives** and either answer should receive full credit.

4. ( ) means that a phrase/word is not essential for the award of the mark but helps the examiner to get the sense of the expected answer.

5. Phrases/words in **bold** indicate that the meaning of the phrase/word is **essential** to the answer.

6. **OWTTE** (or words to that effect) and eq (equivalent) indicate that valid alternative answers (which have not been specified) are acceptable.

7. '**Ignore**' means that this answer is not worth a mark but does not negate an additional correct response.

8. '**Reject**' means that the answer is wrong and negates any additional correct response for that specific mark.

9. **ORA** (or reverse argument) indicates that the complete reverse is also valid for the award of marks.

10. ecf (error carried forward) means that a wrong answer given in an earlier part of a question is used correctly in answer to a later part of the same question.

Marking

1. You must give a tick (in red) for every mark awarded. The tick must be placed on the script close to the answer. The total mark awarded for a question should be written in the box at the end of the question.

2. The total marks for a question should then transferred to the front of the script.

3. Suggestion/explanation questions should be marked correct even when the suggestion is contained within the explanation.

4. **Do not** award marks for repetition of the stem of the question.

5. Make sure that the answer makes sense. Do not give credit for correct words/phrases which are put together in a meaningless manner. Answers must be in the correct scientific context.

Amplification

1. In calculations, full credit must be given for a bald, correct answer. If a numerical answer is incorrect, look at the working and award marks according to the mark scheme.

2. Consequential marking should be used in calculations. This is where a candidate's working is correct but is based upon a previous error. When consequential marks have been awarded write "ecf" next to the ticks.

3. If candidates use the mole in calculations they must be awarded full marks for a correct answer even though the term may not be on the syllabus at their level.

4. If candidates use chemical formulae instead of chemical names, credit can only be given if the formulae are correct.

Unit 5018H / 5038H / 1H (C2) Mark Scheme

Question Number	Answer	Mark
1 (a)	carbon dioxide/ethane/propene 3 correct;; 2 correct; [Reject ethene or propane]	**(2)**
1 (b) (i)	(molecule/compounds/substances) containing carbon and hydrogen (only); [Reject reference to carbon and hydrogen molecules]	**(1)**
1 (b) (ii)	B and C;	**(1)**
1 (c)	C/propene; alkene/double bond/unsaturated; [marking independently] [Ignore spare bonds/extra electrons]	**(2)**
1 (d)	C_2H_4; C_8H_{18}; [Allow structural and displayed formulae] [Allow 1 mark for two hydrocarbon molecules that add to 10 carbon atoms and 22 hydrogen atoms – each molecule must contain C and H but does not need to be a real molecule]	**(2)**

Question Number	Answer	Mark
2 (a)	11 electrons and 11 protons; 12 neutrons;	**(2)**
2 (b)	one outer electron; from Na to Cl; [Allow arrow on diagram from electron on outer shell of sodium; to chlorine's outer shell;] [Reject reference to covalent bond]	**(2)**
2 (c)	strong forces of attraction between ions/ strong (ionic) bonds/ high energy needed to overcome forces of attraction/ OWTTE; [Reject reference to covalent bond]	**(1)**
2 (d)	ions can move; [Reject electrons]	**(1)**
3 (a)	may be toxic/harmful/cause side effects/ to check that it works; [Ignore dangerous/unsafe]	**(1)**
3 (b)	drug reduced (risk of) heart attacks/drug was effective;	**(1)**
3 (c)	75%;	**(1)**
4 (a)	exothermic/energy released/heat given out/OWTTE; [Ignore references to light energy]	**(1)**
4 (b)	$2Fe + 3Cl_2 \rightarrow 2\ FeCl_3$ correct formulae; balancing of correct formulae;	**(2)**
4 (c)	atoms larger/greater number of shells/ outer shell further from nucleus; (added) electron less attracted/increased shielding; [Ignore references to numbers of electrons in outer shells]	**(2)**
4 (d)	larger surface area/more iron exposed; more (frequent) collisions;	**(2)**

Question Number	Answer	Mark
5 (a)	less/decreased yield/favours back reaction/ equilibrium moves to left; equilibrium moves to endothermic side/ back reaction is endothermic; [1st mark for what happens/effect 2nd mark for reason the equilibrium shifts]	**(2)**
5 (b)	higher energy costs/higher plant costs/ risk of explosion/stronger container required; [reason for higher cost has to be specified] [Ignore less safe]	**(1)**
5 (c)	bonds broken requires heat or energy/endothermic; bonds made releases heat or energy/exothermic; more heat or energy released than required; [Note: 3rd mark to be awarded for idea that more energy is given out than taken in; so, if the first two points are reversed can still score third mark]	**(3)**

TOTAL MARK 30