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IGCSE Chemistry 4335 1F
Mark Scheme (Results)
Summer 2007

IGCSE

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IGCSE CHEMISTRY 4335, MAY 2007 MARK SCHEME

Paper 1F

1. (a) Mg **1**

(b) C **1**

(c) O **ACCEPT** 8 **1**

(d) 2 / alkaline earth **1**

(e) 7 / halogen **1**

Total 5 marks

2. (a) nucleus / centre **1**

(b) electrons **1**

(c) protons **1**

(d) protons and neutrons **1**

(e) isotopes **1**

Total 5 marks

3. (a) oxygen
water **2**

(b) iron oxide / rust **1**

(c) oil / grease / paint / plastic / zinc *(Any two for 1 each)* **2**
accept chrome / chromium
reject copper / magnesium

Total 5 marks

4. (a) (i) shared pair of electrons **1**
(ii) H $\times^{\bullet}$ H **1**
accept two $\times$ or two $\bullet$

(b) burning splint / flame
(squeaky) pop / explode (dependent on first point) **2**

(c) (manufacture of) ammonia /margarine / HCl **1**

(d) hydrogen + oxygen $\rightarrow$ water **1**

(e) (i) colourless
white
blue **3**
(ii) hydration (box ticked) **1**

Total 10 marks

5. (a) iron tube diagram completed with 5 or fewer bubbles
magnesium diagram completed with 7 or more bubbles **2**

(b) zinc + hydrochloric acid → zinc chloride + hydrogen **1**

(c) copper / silver / gold / platinum **1**

(d) water / H_2O / steam
oxygen/O_2 / air
metal salt (solutions) *(Any two for 1 each)* **2**
Allow metal oxides

Total 6 marks

6. (a) aq (H^+)
l (H_2O)
g (CO_2) **3**

(b) any acid identified by name (not carbonic) **1**

(c) carbonate (CO_3^{2-})
carbon dioxide (CO_2) **2**

(d) (i) calcium hydroxide **1**
(ii) limewater **1**
(iii) milky / cloudy / white precipitate **1**
(iv) $CaCO_3$
H_2O **2**
(incorrect balancing – deduct 1 mark)

(e) (makes it) acidic / forms carbonic acid **1**

Total 12 marks

7. (a) hydrogen
carbon (either order) **2**

(b) rise to different height
(according to) different condensation temperatures (allow boiling points) **2**

(c) (gasoline) petrol / (fuel for) cars
(bitumen) tarmac / (making) roads / roofs **2**

(d) refinery gases / kerosene / diesel / fuel oil/ naphtha / **2**
(Any two for 1 each)

(e) (i) carbon dioxide / CO_2
water / H_2O **2**
(ii) Any two from
CO made
toxic / poisonous (accept lethal / death)(reject suffocate)
correct reference to blood / haemoglobin
2

Total 12 marks

8. (a) catalyst **1**

(b) (i) line steeper
reaches same level **2**

(ii) line shallower
reaches same level **2**

(c) glowing spill
relights (dependent on first point) **2**

Total 7 marks

9. (a) heat **1**

(b) (i) diffusion **1**

(ii) ammonium chloride / NH_4Cl **1**

(iii) ammonia faster / hydrogen chloride slower **1**

(iv) **A** : red
B : blue **2**

Total 6 marks

10. (a) (i) ticks in 1st and 3rd boxes **2**

(ii) contains a double/multiple bond /
can undergo addition reactions
(accept a specific **addition** reaction except bromine) **1**

(b) (i) orange / yellow
colourless **2**

(ii) correct structure of 1,2-dibromoethane **1**

(c) correct structures for two isomers of C_4H_8 **2**
but-1-ene, but-2-ene (cis + trans)
cyclo-butane, cyclo-methyl propane, methyl propene

Total 8 marks

11. (a) anticlockwise from top:
haematite
molten iron
slag **3**

(b) (i) $C + O_2 \rightarrow CO_2$ ignore state symbols **1**

(ii) heats it up / raises temperature / exothermic **1**

(c) (i) $CaCO_3 \rightarrow CaO + CO_2$ **1**

(ii) SiO_2 acidic / neutralises SiO_2
forms slag / calcium silicate / $CaO + SiO_2 \rightarrow CaSiO_3$ **2**

(d) loss of oxygen / Fe^{3+} gains electrons / Fe ions gains electrons / **1**
Fe (III) gains electrons (reject Fe gains electrons)

(e) (i) aluminium too reactive / more reactive than carbon / accept Al **very** high in the reactivity series **1**

(ii) any suitable use e.g. aeroplanes **2**
property must be related e.g. low density
specified transport – low density (not light)
cooking foil / drink cans – easily moulded / malleable
power cables – good conductor of electricity
window frames – does not corrode
cars – does not corrode
cooking pans - conducts heat
ladders - low density
ignore references to strength

Total 12 marks

12. (a) (i) any two from:
fizz / bubble
move / darts about
melts / forms a ball **2**
gets smaller / disappears (reject dissolves) **1**

(ii) sodium + water → sodium hydroxide + hydrogen

(iii) blue / purple **2**
(solution made is) alkaline / (contains) hydroxide ions / OH^- / not just "alkali metal"
pH 11 → 14 (any in range)

(b) (i) orange / yellow **1**

(ii) flame test **1**

(c) (i) electrons being transferred between oxygen and sodium (can be wrong way round)
idea of sodium losing electron(s) and oxygen gaining electron(s)
correct numbers of electrons involved (sodium lose 1, oxygen gain 2)
(sharing = 0 marks) **3**

(ii) Na^+
O^{2-} **2**

Total 12 marks

PAPER TOTAL 100 MARKS