Write your name, centre number and candidate number in the boxes below.

Surname	Other names

Centre number | | | | | |

Candidate number | | | | |

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Redox reactions

Time allowed: 15 minutes

Subject code **0620**

Chemistry

Questions from Paper 1 and Paper 2

You must have: a soft pencil, an eraser and a pen.

Total marks

/ 10

Instructions

- There are 10 questions. Each has four options: A, B, C and D.
- Choose one option for each question and record it as your teacher directs.
- If you change a choice, rub out the first one completely.

Information

- This paper has 10 questions worth 10 marks in total.

Advice

- Read every question through once before you write anything.
- If you finish early, go back and check your working.

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Turn over ►

Print at 100% (Actual size) so diagrams keep their real measurements.

1 The equation for the reaction between magnesium and copper(II) oxide is shown.

$$Mg + CuO \rightarrow MgO + Cu$$

Which substance is oxidised?

A Cu **B** CuO **C** Mg **D** MgO

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Answer C

2 Iron(III) chloride, $FeCl_3$, is a brown solid.

What is the meaning of (III) in the name?

A It is the amount of energy released when the compound was formed.

B It is the rate of the reaction that formed this compound.

C It is how many atoms of iron are bonded together in the compound.

D It is the oxidation number of iron in the compound.

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Answer D

3 The reactions shown may occur in the air during a thunder storm.

$$N_2 + O_2 \rightarrow 2NO$$

$$2NO + O_2 \rightarrow 2NO_2$$

$$NO + O_3 \rightarrow NO_2 + O_2$$

Which row shows what happens to the reactant molecules in each of these reactions?

	N_2	NO	O_3
A	oxidised	oxidised	oxidised
B	oxidised	oxidised	reduced
C	reduced	reduced	oxidised
D	reduced	reduced	reduced

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Answer B

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4 Copper metal donates electrons to silver ions.

Zinc metal donates electrons to copper ions.

What is the strongest reducing agent?

A copper ions

B copper metal

C silver ions

D zinc metal

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Answer D

5 Chlorine displaces iodide ions from potassium iodide.

$$Cl_2 + 2I^- \rightarrow I_2 + 2Cl^-$$

What is the oxidising agent?

A chloride ions

B chlorine

C iodide ions

D iodine

Redox reactions Click for more variations

Answer B

6 Which row describes what happens to Fe^{2+} ions when they are oxidised?

	electron movement	oxidation number of iron
A	they gain electrons	decreases
B	they gain electrons	increases
C	they lose electrons	decreases
D	they lose electrons	increases

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Answer D

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7 The equation shows the reaction between copper and concentrated nitric acid.

$$Cu(s) + 4HNO_3(aq) \rightarrow Cu(NO_3)_2(aq) + 2NO_2(g) + 2H_2O(l)$$

Which element is reduced in this reaction?

A oxygen

B nitrogen

C copper

D hydrogen

Redox reactions Click for more variations

Answer B

8 An excess of iron(II) chloride is added to acidified potassium manganate(VII).

Which statements are correct?

1 The purple colour disappears.

2 Iron(II) is reduced to iron(III).

3 Manganate(VII) ions are oxidised to manganese(II) ions.

4 Potassium manganate(VII) is an oxidising agent.

A 1 and 2 **B** 1 and 4 **C** 2 and 3 **D** 3 and 4

Redox reactions Click for more variations

Answer B

9 The equation for the reaction of sulfur dioxide with acidified potassium dichromate(VI) is shown.

$$3SO_2 + Cr_2O_7^{2-} + 2H^+ \rightarrow 3SO_4^{2-} + 2Cr^{3+} + H_2O$$

What is oxidised and what is the oxidising agent?

	oxidised	oxidising agent
A	SO_2	$Cr_2O_7^{2-}$
B	SO_2	H^+
C	$Cr_2O_7^{2-}$	H^+
D	$Cr_2O_7^{2-}$	$Cr_2O_7^{2-}$

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Answer A

10 Aqueous iron(III) chloride, $FeCl_3$, reacts with aqueous potassium iodide, KI.

$$v FeCl_3 + w KI \rightarrow x FeCl_2 + y KCl + I_2$$

Which statements are correct?

1 In the balanced equation, *v*, *w*, *x* and *y* have the same value.

2 Potassium iodide is an oxidising agent.

3 A dark brown solution is produced in the reaction.

A 1 and 2 **B** 1 and 3 **C** 2 only **D** 2 and 3

Chemical formulae and equations Click for more variations

Answer B

Answer key

1	C
2	D
3	B
4	D
5	B
6	D
7	B
8	B
9	A
10	B

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