Paper 1

Questions are applicable for both core and extended candidates

1 Both calcium oxide, CaO, and calcium hydroxide, $Ca(OH)_2$, are used to remove sulfur dioxide, SO_2, from flue gases in industrial plants.

Which row classifies calcium oxide, calcium hydroxide and sulfur dioxide?

	calcium oxide	calcium hydroxide	sulfur dioxide
A	acidic	acidic	basic
B	acidic	basic	acidic
C	basic	acidic	acidic
D	basic	basic	acidic

2 Which row identifies an acidic oxide and a basic oxide?

	acidic oxide	basic oxide
A	CaO	CuO
B	CaO	SO_2
C	CO_2	CuO
D	CO_2	SO_2

3 The oxides of two elements, X and Y, are separately dissolved in water and the pH of each solution tested.

oxide tested	pH of solution
X	1
Y	13

Which information about X and Y is correct?

	oxide is acidic	oxide is basic	metal	non-metal
A	X	Y	X	Y
B	X	Y	Y	X
C	Y	X	X	Y
D	Y	X	Y	X

4 Reactions of three metals and their oxides are shown.

metal	add dilute hydrochloric acid to metal	heat metal oxide with carbon
1	✓	✓
2	✓	✗
3	✗	✓

key

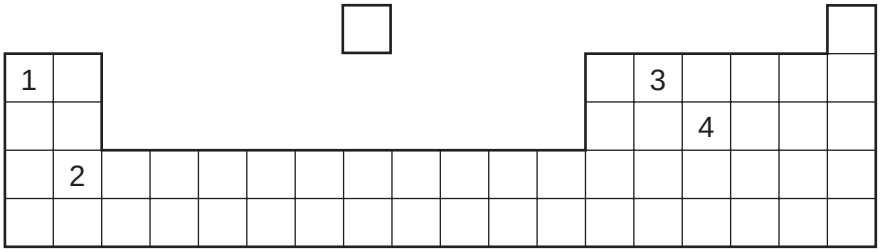
✓ = reacts

✗ = does not react

What is the order of reactivity of these metals, from most reactive to least reactive?

A $1 \rightarrow 2 \rightarrow 3$ **B** $1 \rightarrow 3 \rightarrow 2$ **C** $2 \rightarrow 1 \rightarrow 3$ **D** $2 \rightarrow 3 \rightarrow 1$

5 Part of the Periodic Table is shown.



Which elements form basic oxides?

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

Paper 2

Questions are applicable for both core and extended candidates unless indicated in the question

6 Which element forms an acidic oxide?

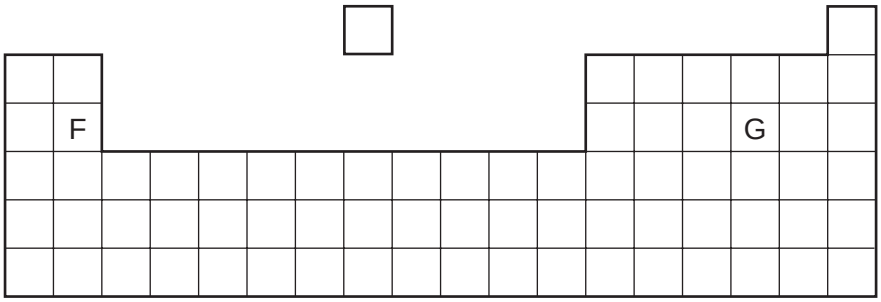
A calcium

B lithium

C magnesium

D sulfur

7 Part of the Periodic Table is shown.



Which type of chemical bonding is present in the oxide of F and in the oxide of G?

	oxide of F	oxide of G
A	covalent	covalent
B	covalent	ionic
C	ionic	covalent
D	ionic	ionic

8 Which oxide is classified as an amphoteric oxide? **(extended only)**

A aluminium oxide

B calcium oxide

C copper(II) oxide

D nitrogen oxide

9 Zinc oxide is an amphoteric oxide.

Which types of substances will react with zinc oxide? **(extended only)**

A acids and bases

B acids only

C bases only

D neither acids nor bases

10 The oxides of two elements, X and Y, are separately dissolved in water and the pH of each solution tested.

oxide tested	pH of solution
X	1
Y	13

Which information about X and Y is correct?

	oxide is acidic	oxide is basic	metal	non-metal
A	X	Y	X	Y
B	X	Y	Y	X
C	Y	X	X	Y
D	Y	X	Y	X

11 Carbon forms two oxides: carbon monoxide, CO, and carbon dioxide, CO_2.

Which row describes these two oxides?

	CO	CO_2
A	acidic	acidic
B	acidic	neutral
C	neutral	acidic
D	neutral	neutral