

**22** Four metal oxides are listed.

- 1  $Al_2O_3$
- 2  $CaO$
- 3  $CuO$
- 4  $ZnO$

Which metal oxides are amphoteric?

- A** 1 and 4      **B** 1 only      **C** 2, 3 and 4      **D** 2 and 3 only

IGCSE Chemistry: **w25 22**

**21** Phosphorus is an element in Group V of the Periodic Table.

It burns in air to form an oxide that dissolves in water to form a solution with a pH of 1.

Which row describes this oxide of phosphorus?

|          | metal oxide | non-metal oxide | acidic oxide | basic oxide |
|----------|-------------|-----------------|--------------|-------------|
| <b>A</b> | ✓           | ✗               | ✓            | ✗           |
| <b>B</b> | ✓           | ✗               | ✗            | ✓           |
| <b>C</b> | ✗           | ✓               | ✓            | ✗           |
| <b>D</b> | ✗           | ✓               | ✗            | ✓           |

key

✓ = yes

✗ = no

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**25** Which metal oxide reacts with aqueous sodium hydroxide to form a salt and water?

- A** calcium oxide  
**B** copper(II) oxide  
**C** sodium oxide  
**D** aluminium oxide

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**20** Which three oxides are **all** acidic?

- A**  $CaO$ ,  $NO_2$ ,  $SO_2$   
**B**  $CaO$ ,  $CO_2$ ,  $Na_2O$   
**C**  $CO_2$ ,  $NO_2$ ,  $SO_2$   
**D**  $CO_2$ ,  $Na_2O$ ,  $SO_2$

**20** Which row identifies an acidic oxide, a basic oxide and an amphoteric oxide?

|          | acidic          | basic                          | amphoteric                     |
|----------|-----------------|--------------------------------|--------------------------------|
| <b>A</b> | ZnO             | SO <sub>2</sub>                | Al <sub>2</sub> O <sub>3</sub> |
| <b>B</b> | SO <sub>2</sub> | Al <sub>2</sub> O <sub>3</sub> | Na <sub>2</sub> O              |
| <b>C</b> | ZnO             | Al <sub>2</sub> O <sub>3</sub> | SO <sub>2</sub>                |
| <b>D</b> | SO <sub>2</sub> | Na <sub>2</sub> O              | Al <sub>2</sub> O <sub>3</sub> |

**23** Element E is a metal in Group I of the Periodic Table and element G is a non-metal in Group VII. Both of these elements form oxides.

Which statement about their oxides is correct?

- A** Both oxides are acidic.
- B** Both oxides are basic.
- C** The oxide of E is acidic and the oxide of G is basic.
- D** The oxide of G is acidic and the oxide of E is basic.