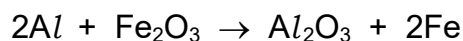


26 What is the correct order of reactivity of the following metals, from least reactive to most reactive?

- A** calcium → magnesium → zinc → copper
- B** copper → zinc → magnesium → calcium
- C** copper → zinc → calcium → magnesium
- D** zinc → copper → magnesium → calcium

27 The equation for the reaction between aluminium and iron(III) oxide is shown.



Which statement about this reaction is correct?

- A** The aluminium acts as an oxidising agent.
- B** It shows that iron is more reactive than aluminium.
- C** The oxidation number of the aluminium decreases during the reaction.
- D** It shows that aluminium has a greater tendency to form ions than iron.

26 Four different metals are separately added to water.

The oxide of each metal is separately heated with carbon.

The results are shown.

metal	metal with water	metal oxide with carbon
Q	no reaction	brown solid forms
R	rapid fizzing	no reaction
S	a few bubbles	no reaction
T	a few bubbles	grey solid forms

What is the order of reactivity of the four metals, least reactive first?

- A** Q → T → S → R
- B** Q → S → T → R
- C** R → S → T → Q
- D** R → T → S → Q

28 Some information about four metals P, Q, R and S is listed.

Metal P does **not** react with dilute hydrochloric acid.

Metal Q is more reactive than magnesium.

Metal R reacts rapidly with cold water to produce hydrogen.

Metal S reacts with dilute hydrochloric acid to produce hydrogen.

Which row identifies P, Q, R and S?

	P	Q	R	S
A	gold	aluminium	sodium	copper
B	copper	potassium	calcium	magnesium
C	silver	calcium	iron	zinc
D	magnesium	sodium	potassium	iron

26 Three statements about solid Z are listed.

- It reacts with dilute hydrochloric acid to produce hydrogen.
- It reacts very slowly with cold water and quickly with steam.
- It is a good thermal conductor.

What is solid Z?

- A** gold
- B** magnesium
- C** potassium
- D** silver

27 Four metals J, K, L and M are added separately to aqueous solutions of their ions.

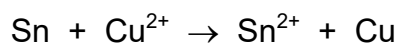
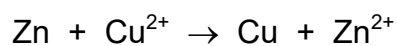
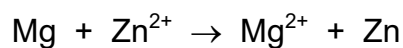
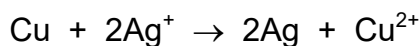
The results are shown.

metal	aqueous ions				
	J ²⁺	K ²⁺	L ²⁺	M ²⁺	
J	x	✓	✓	✓	key ✓ = reaction x = no reaction
K	x	x	x	✓	
L	x	✓	x	✓	
M	x	x	x	x	

Which statement about the metals is correct?

- A** J has a greater tendency to form positive ions than K.
- B** L has a greater tendency to form positive ions than J.
- C** K has a greater tendency to form positive ions than L.
- D** M has a greater tendency to form positive ions than K.

26 The ionic equations for some reactions between metals and aqueous metal ions are shown.

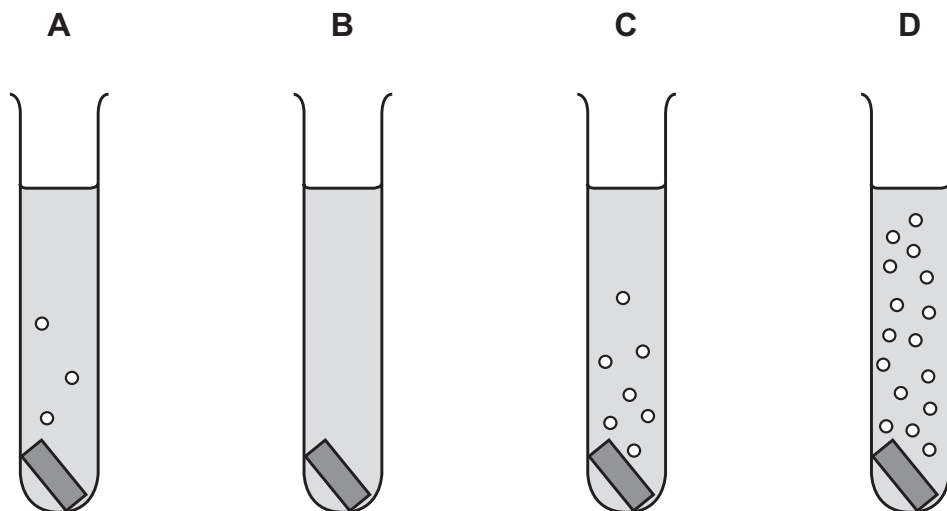


Which further information can be used to place copper, magnesium, silver, tin and zinc in order of their reactivity?

- A** Zinc reacts with Sn²⁺ ions.
- B** Copper does **not** react with Sn²⁺ ions.
- C** Magnesium reacts with Cu²⁺ ions.
- D** Magnesium reacts with Ag⁺ ions.

- 25** Four test-tubes contain dilute hydrochloric acid. Each test-tube has one piece of a different metal added to it. The metals are copper, iron, magnesium and zinc.

Which test-tube contains iron and dilute hydrochloric acid?



- 29** Separate pieces of aluminium foil and copper foil are heated in air.

The copper foil reacts to give a black solid.

The aluminium foil does **not** react.

Which statement explains these observations?

- A** Aluminium has an unreactive layer, but copper does **not**.
- B** Aluminium is below copper in the reactivity series.
- C** Copper reacts with moisture in the air, but aluminium does **not**.
- D** Copper reacts with nitrogen in the air, but aluminium does **not**.