

## O Level Pure Chemistry MCQs

### Metals Test 2.0

Q1

Which statements about the production of iron from iron(III) oxide in the blast furnace is correct?

- A The reaction between iron(III) oxide and carbon monoxide liberates carbon dioxide.
- B The iron is obtained using carbon monoxide as an oxidising agent.
- C Molten iron floats on slag at the base of the furnace.
- D The iron(III) oxide is reduced by carbon dioxide.

Q2

Element X displaces element Y from the aqueous chloride of Y.

Element Z reacts with cold water to give hydrogen.

Element X gives off hydrogen only when heated with steam.

What could elements X, Y and Z be?

|   | X       | Y      | Z       |
|---|---------|--------|---------|
| A | copper  | zinc   | sodium  |
| B | calcium | copper | silver  |
| C | copper  | silver | calcium |
| D | zinc    | copper | calcium |

Q3

Some properties of four elements **P**, **Q**, **R** and **S** are listed.

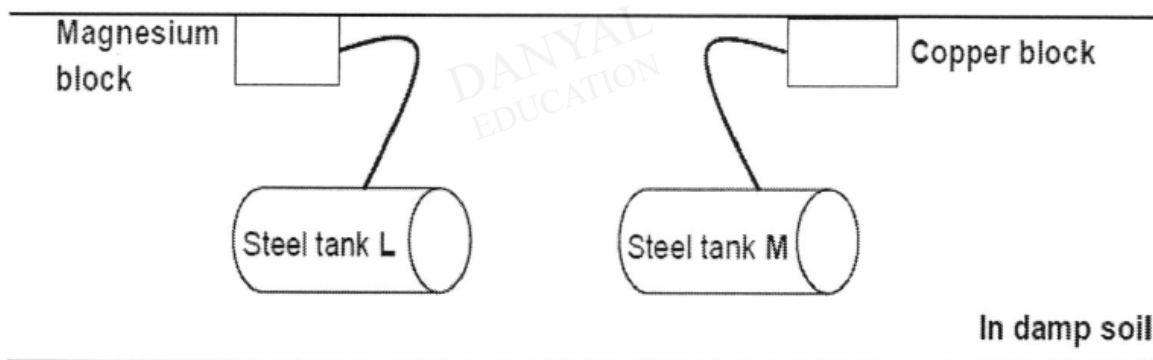
- **P** is the most abundant elements on earth and forms an acidic oxide  $\text{PO}_2$ .
- **Q** has a high density and is easily drawn into wire.
- **R** acts as a catalyst and its oxide reacts with acids.
- **S** is a red brown solid used to form alloys.

Which of the elements are metals?

- A** **P** and **R** only                      **B** **Q** and **R** only
- C** **Q** and **S** only                      **D** **Q**, **R** and **S**

Q4

A block of magnesium and a block of copper are attached to underground steel tanks, **L** and **M**, as shown in the diagram below.



Which of the following statements is not true?

- A** The magnesium block will need to be replaced more regularly than the copper block.
- B** Steel tank M will rust faster than steel tank L.
- C** Both the magnesium and copper block will be oxidised.
- D** The magnesium block will be oxidised by losing electrons to steel tank L.

Q5

Titanium reacts with acid and cannot be extracted from its ore by heating with carbon. Where should titanium be placed in the reactivity series?

- A below copper
- B between zinc and iron
- C between iron and copper
- D between magnesium and zinc

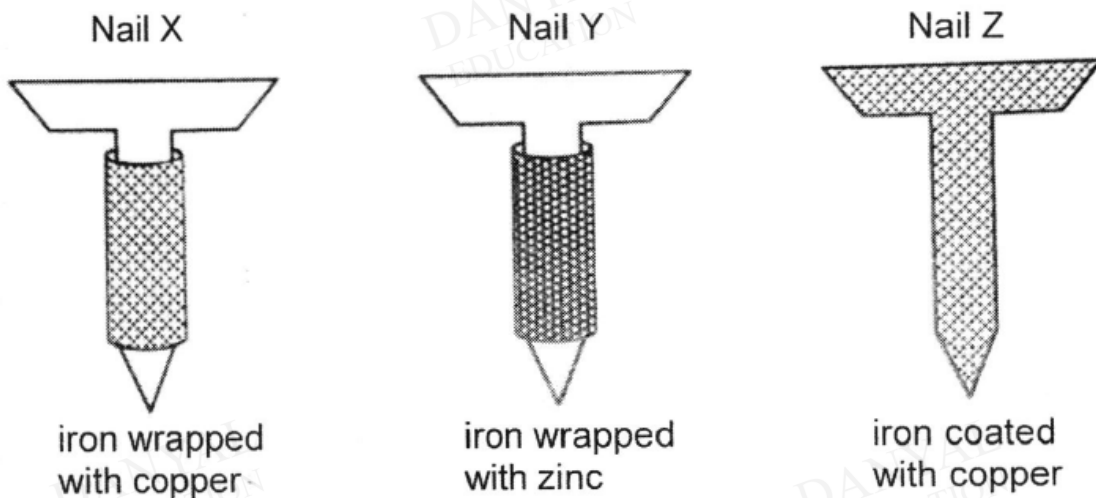
Q6

Which statement about the extraction of iron from its ore is correct?

- A Iron is more difficult to extract than zinc.
- B Iron is more difficult to extract than copper.
- C Iron is easy to extract because it is a transition metal.
- D Iron cannot be extracted by reduction with carbon.

Q7

The diagram below shows the experiment of investigating rusting of iron nails.



Which of the nail(s) above shows(s) rusting?

- A X only
- B X and Y only
- C X and Z only
- D Y and Z only

Q8

Water is formed when hydrogen is passed over the oxides of P and Q, but not when hydrogen is passed over the oxide of R. Furthermore, Q reduces the oxide of P.

Which is the order of reactivity for metals P, Q and R in increasing order?

- A P, Q, R
- B Q, P, R
- C R, P, Q
- D R, Q, P

Q9

Iron pipes corrode rapidly when exposed to seawater.

Which metal, when attached to the iron pipes, would not offer protection against corrosion?

- A aluminium
- B magnesium
- C platinum
- D zinc

Q10

Different types of steel differ in how much carbon they contain.

What are the properties of a high carbon steel?

- A soft and brittle
- B soft and easily shaped
- C strong and brittle
- D strong and easily shaped

**Answers**

**Metals Test 2.0**

Q1 A

Q2 D

Q3 D

Q4 C

Q5 D

Q6 B

Q7 A

Q8 A

Q9 C

Q10 C

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