

O Level Pure Chemistry MCQs

Redox Test 2.0

Q1

In which of the following experiments will a redox reaction occur?

- A adding zinc granule to silver nitrate solution
- B adding calcium oxide powder to aqueous sulfuric acid
- C adding aqueous sodium hydroxide to aqueous nitric acid
- D adding calcium(II) chloride solution to copper(II) sulfate solution

Q2

After adding acidified potassium manganate(VII) solution to a sample of solution X, the potassium manganate(VII) solution was decolourised and the resulting solution was brown. When starch solution was added to a fresh sample of solution X, the solution turned dark blue. What conclusion can be drawn about solution X?

- A It is a reducing agent and it contains iodide ions.
- B It is a reducing agent and it contains bromide ions.
- C It is an oxidising agent and it contains iodide ions.
- D It is an oxidising agent and it contains bromide ions.

Q3

Which is not a redox reaction?

- A $\text{CH}_4 + 2\text{O}_2 \rightarrow \text{CO}_2 + 2\text{H}_2\text{O}$
- B $\text{Cu}^{2+} + \text{Zn} \rightarrow \text{Cu} + \text{Zn}^{2+}$
- C $\text{CuO} + \text{H}_2\text{SO}_4 \rightarrow \text{CuSO}_4 + \text{H}_2\text{O}$
- D $\text{Zn} + \text{H}_2\text{SO}_4 \rightarrow \text{ZnSO}_4 + \text{H}_2$

Q4

Peroxodisulfuric acid, $\text{H}_2\text{S}_2\text{O}_8$, reacts with potassium iodide, KI, according to the equation:



What does the reaction show about the nature of peroxodisulfuric acid?

- A It is acidic.
- B It is basic.
- C It is an oxidising agent.
- D It is a reducing agent.

Q5

Crysotile, $\text{Mg}_3\text{Si}_2\text{O}_5(\text{OH})_4$ is an asbestos mineral.
What is the oxidation state of silicon in the mineral?

- A** - 4 **B** - 2 **C** + 2 **D** + 4

Q6

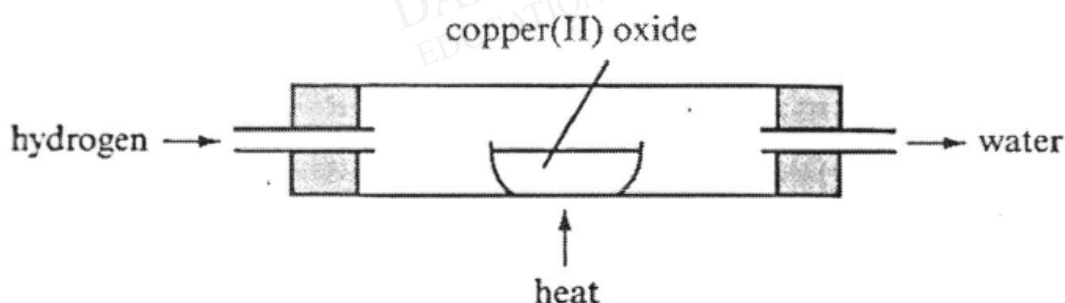
A reducing agent is added separately to four different reagents and the colour changes are recorded.

What is the correct description of the colour change?

	reagent	colour change
A	aqueous bromine	colourless to brown
B	acidified potassium dichromate(VI)	green to orange
C	aqueous potassium iodide	colourless to brown
D	acidified potassium manganate(VII)	purple to colourless

Q7

An experiment is set up as shown.



A student recorded these inferences.

- 1 Hydrogen is a reducing agent.
- 2 Hydrogen gains oxygen to form water.
- 3 Copper(II) oxide loses oxygen to form copper metal.
- 4 Copper(II) oxide gains hydrogen and is reduced.

Which of these inferences are correct?

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

Q8

Which equation does **not** represent a redox reaction?

- A $\text{CuSO}_4 + \text{Zn} \rightarrow \text{Cu} + \text{ZnSO}_4$
- B $2\text{H}_2 + \text{O}_2 \rightarrow 2\text{H}_2\text{O}$
- C $\text{H}_2\text{S} + \text{Cl}_2 \rightarrow 2\text{HCl} + \text{S}$
- D $\text{NH}_3 + \text{HCl} \rightarrow \text{NH}_4\text{Cl}$

Q9

The equation below shows the reaction of iron(III) sulfate with potassium iodide.



Which statement about the reaction is **not** correct?

- A At the end of the reaction, the solution appears brown.
- B Formula of product X is K_2SO_4 .
- C Iodine is reduced in the reaction.
- D The oxidation state of iron decreases from +3 to +2.

Q10

Which reaction does not involve either oxidation or reduction?

- A $\text{CH}_4(\text{g}) + 2\text{O}_2(\text{g}) \rightarrow \text{CO}_2(\text{g}) + 2\text{H}_2\text{O}(\text{g})$
- B $\text{Cu}^{2+}(\text{aq}) + \text{Zn}(\text{s}) \rightarrow \text{Cu}(\text{s}) + \text{Zn}^{2+}(\text{aq})$
- C $\text{CuO}(\text{s}) + \text{H}_2\text{SO}_4(\text{aq}) \rightarrow \text{CuSO}_4(\text{aq}) + \text{H}_2\text{O}(\text{l})$
- D $\text{Zn}(\text{s}) + \text{H}_2\text{SO}_4(\text{aq}) \rightarrow \text{ZnSO}_4(\text{aq}) + \text{H}_2(\text{g})$

Answers

Redox Test 2.0

Q1 A

Q2 A

Q3 C

Q4 C

Q5 D

Q6 D

Q7 B

Q8 D

Q9 C

Q10 C

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