

O Level Pure Chemistry MCQs

Redox Test 3.0

Q1

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 $\text{Zn}(\text{s}) + \text{H}_2\text{SO}_4(\text{aq}) \rightarrow \text{ZnSO}_4(\text{aq}) + \text{H}_2(\text{g})$

Q2

Which of the following reactions is neither a reduction nor oxidation reaction?

- A Aqueous silver nitrate is added to hydrochloric acid.
- B Discharge of hydrogen ions at the cathode.
- C Silver chloride is exposed to light.
- D Wine turns sour.

Q3

Which reaction does not involve oxidation and/or reduction?

- A $\text{Cl}_2 + 2\text{Br}^- \rightarrow 2\text{Cl}^- + \text{Br}_2$
- B $\text{Ag}^+ + \text{Cl}^- \rightarrow \text{AgCl}$
- C $\text{Mg} + 2\text{HCl} \rightarrow \text{MgCl}_2 + \text{H}_2$
- D $2\text{Na} + \text{Cl}_2 \rightarrow 2\text{NaCl}$

Q4

A portion of acidified potassium manganate (VII) solution was added to a sample of solution X.

Solution X decolourised the potassium manganate(VII) solution. The resulting solution Y was brown. When starch solution is added to a sample of solution Y, the solution turned dark blue.

What conclusion can be drawn about solution X?

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

Q5

Which of the following is the most powerful reducing agent?

- A F^-
- B K
- C Li
- D O^{2-}

Q6

The reaction between zinc and hydrochloric acid can be represented by the ionic equation below.



Which statement about this reaction is true?

- A Zinc is oxidised because there is a gain in electrons.
- B Zinc is oxidised because there is a loss of electrons.
- C Zinc is reduced because there is a gain in electrons.
- D Zinc is reduced because there is a loss of electrons.

Q7

The reaction between bromide ion and bromate(V) ion is represented by the following equation:



Which of the following is true about the reaction?

- A Hydrogen ion is reduced to water.
- B Bromide ion is the oxidising agent.
- C Bromate(V) ion has undergone reduction.
- D The oxidation number of bromine in bromate(V) ion is +3.

Q8

Nitrates are commonly added to soils as nitrogenous fertilisers but can be leached out of the soil into nearby streams. Soil can, however, retain nitrogen if the nitrate is converted into ammonium ions. What conditions in the soil would improve the production and retention of ammonium ions?

- A acidic and oxidising
- B acidic and reducing
- C alkaline and oxidising
- D alkaline and reducing

Q9

Calcium forms an ionic compound with carbon, called calcium carbide. The oxidation number of carbon in calcium carbide is -1 .

Calcium carbide reacts readily with water to form two products only.

What could be the chemical formulae of calcium carbide and the two possible products formed when calcium carbide reacts with water?

	calcium carbide	products
A	CaC_2	CaO and C_2H_4
B	CaC_2	$\text{Ca}(\text{OH})_2$ and C_2H_2
C	Ca_2C	CaO and C_2H_4
D	Ca_2C	$\text{Ca}(\text{OH})_2$ and C_2H_2

Q10

Ammonia and chlorine react in the gas phase.



Which of the following statements are correct?

- 1 Each nitrogen atom is oxidised.
- 2 Each chlorine atom is reduced.
- 3 Ammonia behaves as a base.

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

Answers

Redox Test 3.0

Q1 C

Q2 A

Q3 B

Q4 B

Q5 B

Q6 B

Q7 C

Q8 B

Q9 B

Q10 B

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