

Chemical Reaction and Equation MCQ Chemistry Questions with Solutions

Q1: Magnesium ribbon is rubbed before burning because it has a coating of

- (a) basic magnesium carbonate
- (b) basic magnesium oxide
- (c) basic magnesium sulphide
- (d) basic magnesium chloride

Answer: (b) basic magnesium oxide

Explanation: Magnesium is a heavily reactive metal. It generates a layer of magnesium oxide on its surface when exposed to air, limiting additional magnesium-oxygen reactions. Because it has a covering of basic magnesium oxide, the magnesium ribbon is rubbed before burning.

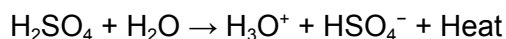
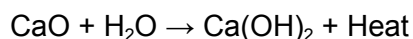
Q2: Which of the following are exothermic processes?

- (i) Reaction of water with quick lime
- (ii) Dilution of an acid
- (iii) Evaporation of water
- (iv) Sublimation of camphor (crystals)

- (a) (i) and (ii)
- (b) (ii) and (iii)
- (c) (i) and (iv)
- (d) (ii) and (iv)

Answer: (a) (i) and (ii)

Explanation: Calcium hydroxide is produced when water reacts with quick lime, coupled with the release of heat. As a result, the reaction is exothermic. Diluting a concentrated acid is an extremely exothermic process.



Q3: $\text{MnO}_2 + 4\text{HCl} \rightarrow \text{MnCl}_2 + 2\text{H}_2\text{O} + \text{Cl}_2$

Identify the substance oxidized in the above equation.

- (a) MnCl_2
- (b) HCl
- (c) MnO_2

(d) H_2O

Answer: (b) HCl

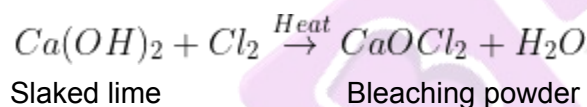
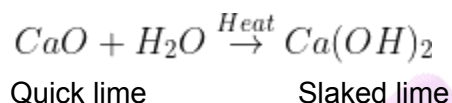
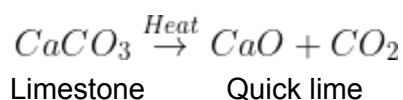
Explanation: Here HCl is oxidized to Cl_2 and MnO_2 is reduced to $MnCl_2$.

Q4: A substance 'X' is used in white-washing and is obtained by heating limestone in the absence of air. Identify 'X'.

- (a) $CaOCl_2$
- (b) $Ca(OH)_2$
- (c) CaO
- (d) $CaCO_3$

Answer: (a)

Explanation:



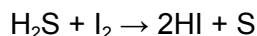
Q5: Which of the following is an endothermic process?

- (a) Dilution of sulphuric acid
- (b) Condensation of water vapours
- (c) Sublimation of dry ice
- (d) Respiration in human beings

Answer: (c) Sublimation of dry ice

Explanation: Sublimation of ice is an immediate phase transition from solid to gas without having to pass through an intermediate liquid state. Because the process requires additional energy, it is an endothermic reaction, and the heat absorbed is referred to as heat of sublimation.

Q6: Select the oxidising agent for the following reaction:



- (a) H_2S

- (b) I_2
- (C) HI
- (d) S

Answer: (b) I_2

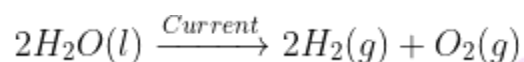
Explanation: Here, Hydrogen is removed from H_2S [Removal of hydrogen is oxidation]. In addition, H_2S is altering in S. H_2S is being depleted of hydrogen by I_2 . As a result, iodine is an oxidising agent.

Q7: What type of chemical reactions take place when electricity is passed through water?

- (a) Displacement
- (b) Decomposition
- (c) Combination
- (d) Double displacement

Answer: (b) Decomposition

Explanation: Electrolysis of water is a decomposition reaction.



Q8: The condition produced by aerial oxidation of fats and oils in foods marked by unpleasant smell and taste is called:

- (a) antioxidation
- (b) reduction
- (c) corrosion
- (d) rancidity

Answer: (d) rancidity

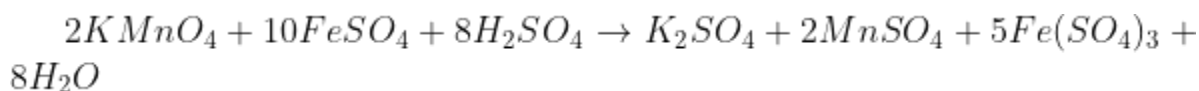
Explanation: Rancidity is a term used to describe the development of an unpleasant odour and taste in fat and oil-containing foods as a result of aerial oxidation. It refers to the oxidation of fatty and greasy substances.

Q9: A dilute ferrous sulphate solution was gradually added to the beaker containing acidified permanganate solution. The light purple colour of the solution fades and finally disappears. Which of the following is the correct explanation for the observation?

- (a) $KMnO_4$ is an oxidising agent, and it oxidises $FeSO_4$.
- (b) $FeSO_4$ acts as an oxidising agent and oxidises $KMnO_4$.
- (c) The colour disappears due to dilution; no reaction is involved.
- (d) $KMnO_4$ is an unstable compound and decomposes in the presence of $FeSO_4$ to a colourless compound.

Answer: (a) KMnO_4 is an oxidising agent, and it oxidises FeSO_4 .

Explanation: The oxidising agent in this process is potassium permanganate (KMnO_4). It oxidises ferrous sulphate to ferric sulphate in the presence of dilute H_2SO_4 .



Q10: $\text{Pb} + \text{CuCl}_2 \rightarrow \text{PbCl}_2 + \text{Cu}$

The above reaction is an example of:

- (a) combination
- (b) double displacement
- (c) decomposition
- (d) displacement

Answer: (d) displacement

Explanation: A displacement reaction is illustrated by the given reaction. A displacement reaction occurs when one element of a compound is replaced by another element of the compound.

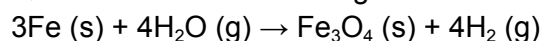
Q11: Which of the following gases can be used for storage?

- (a) Carbon dioxide or Oxygen
- (b) Helium or Nitrogen
- (c) Carbon dioxide or Helium
- (d) Nitrogen or Oxygen

Answer: (b) Helium or Nitrogen

Explanation: Because helium, as well as nitrogen, prevent the oil from becoming rancid, they can be used to store a fresh sample of oil for a long time. The use of nitrogen or helium as a blanketing gas prevents air and oil contact.

Q12: Which of the following statements about the given reaction are correct?



- (i) Iron metal is getting oxidised
- (ii) Water is getting reduced
- (iii) Water is acting as reducing agent
- (iv) Water is acting as oxidising agent

- (a) (i), (ii) and (iii)
- (b) (iii) and (iv)
- (c) (i), (ii) and (iv)

(d) (ii) and (iv)

Answer: (c) (i), (ii) and (iv)

Explanation: Here, oxygen reacts with water to get oxidised. The amount of oxygen in water is reduced due to the removal of oxygen. Water is an oxidising agent as well as a source of oxygen.

Q13: Oxidation is a process that involves

- (a) addition of oxygen
- (b) addition of hydrogen
- (c) removal of oxygen
- (d) removal of hydrogen

Answer: (a) addition of oxygen

Explanation: The process of oxidation involves the addition of oxygen, the removal of hydrogen, or the loss of electrons.

Q14: Give the ratio in which hydrogen and oxygen are present in water by volume.

- (a) 1:2
- (b) 1:1
- (c) 2:1
- (d) 1:8

Answer: (c) 2:1

Explanation: H_2O is the chemical symbol for water. Each water molecule has two hydrogen atoms and one oxygen atom. The H_2O molecule breaks up into two hydrogen and one oxygen atoms when electricity passes through it.

Q15: Which among the following statement(s) is (are) true?

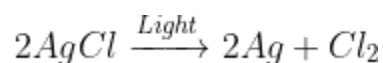
Exposure of silver chloride to sunlight for a long duration turns grey due to

- (i) the formation of silver by decomposition of silver chloride
- (ii) sublimation of silver chloride
- (iii) decomposition of chlorine gas from silver chloride
- (iv) oxidation of silver chloride

- (a) (i) only
- (b) (i) and (iii)
- (c) (ii) and (iii)
- (d) (iv) only

Answer: (a) (i) only

Explanation: Silver chloride decomposes into silver metal and chlorine gas when exposed to light.



Due to the formation of silver metal, the white colour of silver chloride turns grey.

Practise Questions on Chemical Reaction and Equation MCQ

Q1: When Ag is exposed to air, it gets a black coating of

- (a) $AgNO_3$
- (b) Ag_2O
- (c) Ag_2S
- (d) Ag_2CO_3

Answer: (c) Ag_2S

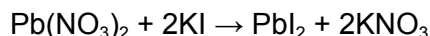
Explanation: Ag stands for silver. When silver is exposed to air, it reacts with the hydrogen sulphide gas in the air to produce a black silver sulphide coating. Silver sulphide is insoluble in all the solvents.

Q2: In the double displacement reaction between aqueous potassium iodide and aqueous lead nitrate, a yellow precipitate of lead iodide is formed. While performing the activity if lead nitrate is not available, which of the following can be used instead of lead nitrate?

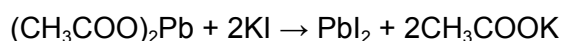
- (a) Lead sulphate (insoluble)
- (b) Ammonium nitrate
- (c) Lead acetate
- (d) Potassium sulphate

Answer: (c) Lead acetate

Explanation: The reaction between lead nitrate and potassium iodide is an example of a precipitation reaction. Potassium iodide interacts with lead nitrate to form lead iodide and potassium nitrate.



The above reaction is a double displacement reaction. Because lead sulphate is water-insoluble, it will not react. On the other hand, Lead acetate can be used because it is water-soluble.



Q3: When SO_2 gas is passed through the saturated solution of H_2S , which of the following reaction occurs?

- (a) $\text{SO}_2 + 2\text{H}_2\text{S} \rightarrow 2\text{H}_2\text{O} + 3\text{S}$
- (b) $\text{SO}_2 + 2\text{H}_2\text{S} \rightarrow \text{H}_2\text{O} + 3\text{S}$
- (c) $\text{SO}_2 + \text{H}_2\text{S} \rightarrow \text{H}_2\text{O} + \text{S}$
- (d) $\text{SO}_2 + \text{H}_2\text{O} \rightarrow \text{SO}_3 + \text{H}_2$

Answer: (a) $\text{SO}_2 + 2\text{H}_2\text{S} \rightarrow 2\text{H}_2\text{O} + 3\text{S}$

Q4: Name the products formed when iron filings are heated with dilute hydrochloric acid

- (a) Fe (III) chloride and water
- (b) Fe (II) chloride and water
- (c) Fe (II) chloride and hydrogen gas
- (d) Fe (III) chloride and hydrogen gas

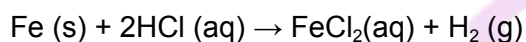
Answer: (c) Fe (II) chloride and hydrogen gas

Explanation: Iron chloride and hydrogen gas are produced when dilute hydrochloric acid is added to iron filings.

Iron (II) chloride and hydrogen gas are formed when iron displaces hydrogen from hydrochloric acid.

This is a single displacement reaction.

Iron chloride and hydrogen gas are produced.



Q5: The process of reduction involves

- (a) addition of oxygen
- (b) addition of hydrogen
- (c) removal of oxygen
- (d) removal of hydrogen

Answer: (b) addition of hydrogen

Explanation: The addition of hydrogen (or any other electropositive atom) to the molecule is also referred to as a reduction reaction.