

AP Chemistry Unit – 3 : Chemical Reactions Practice Test

Question 1

Which is the name of the kind of solid substance formed in this figure?



- A. aqueous
- B. precipitate
- C. acid
- D. synthesis

Question 2

An element plus additional element reacts to form one product is an example of which type of chemical reaction?

- A. combustion
- B. decomposition
- C. synthesis
- D. single replacement

Question 3

Magnesium reacts with hydrochloric acid to produce magnesium chloride and hydrogen gas this happens because?

- A. Magnesium is higher on the reactivity series than hydrogen
- B. magnesium is more reactive than hydrogen

- C. magnesium is able to break the bond between HCl and form MgCl₂
- D. both b and c are correct

Question 4

Which of the following compounds will not disassociate in water?

- A. NaCl
- B. PbCl₂
- C. MgNO₃
- D. Na₂SO₄

Question 5

Which type of reaction takes place in the presence of oxygen and produces carbon dioxide and water?

- A. double replacement
- B. decomposition
- C. combustion
- D. single replacement

Question 6

What is the probable product of a double-replacement reaction?

- A. A new compound and a replaced metal
- B. A new compound and a replaced non-metal
- C. 2 different compounds 1 aqueous and 1 that is a solid, liquid or gas
- D. A single compound

Question 7

Which reaction between halogens and halide salts will occur?

- A. $F_2(g) + FeI_2(aq) \rightarrow FeF_2(aq) + I_2(g)$
- B. $Cl_2(g) + SrF_2(aq) \rightarrow SrCl_2(aq) + F_2(g)$
- C. $I_2(g) + MgBr_2(aq) \rightarrow MnI_2(aq) + Br_2(g)$
- D. $Br_2(l) + CoCl_2(aq) \rightarrow CoBr_2(aq) + Cl_2(g)$

Question 8

When a scientist mixed two chemicals, an exothermic reaction takes place. Which of the following would be proof that the reaction was exothermic?

- A. a change of color
- B. a change of state
- C. a temperature decrease
- D. a temperature increase

Question 9

Increasing the concentration of a reactant in a chemical reaction will

_____.

- A. decrease the rate of the reaction
- B. stop the reaction from happening
- C. increase the rate of the reaction
- D. have no effect on the rate of the reaction

Question 10

If you combine two substances in a beaker at room temperature and the beaker feels cold to the touch, it means that the substances:

- A. have not reacted with each other
- B. have undergone an endothermic reaction
- C. have undergone a physical change
- D. have undergone an exothermic reaction

Question 11

Monika dips a clean iron (Fe) nail into a test tube filled with (CuSO₄) solution and waits for a reaction.



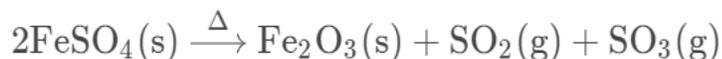
Which of the following reactions does she observe?

Note: Fe is more reactive than Cu.

- A. $\text{Fe(s)} + \text{CuSO}_4(\text{aq}) \rightarrow \text{FeSO}_4(\text{aq}) + \text{Cu(s)}$
- B. No reaction occurs
- C. $\text{Fe(s)} + \text{CuSO}_4(\text{aq}) \rightarrow \text{FeO(aq)} + \text{CuO(aq)} + \text{SO}_2(\text{g})$
- D. $\text{Fe(s)} + \text{CuSO}_4(\text{aq}) \rightarrow \text{FeSO}_3(\text{aq}) + \text{CuO(s)}$

Question 12

Ferrous sulphate crystals are heated to form ferric oxide (Fe_2O_3) and the gases, sulphur dioxide (SO_2) and sulphur trioxide (SO_3).



What type is this chemical reaction?

- A. Combination reaction.
- B. Decomposition reaction.
- C. Displacement reaction.
- D. Double displacement reaction.

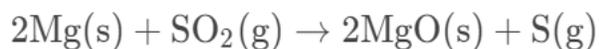
Question 13

Which of the following is an example of physical change?

- A. Sublimation of dry ice.
- B. Burning firewoods.
- C. Heating sugar to form caramel.
- D. Corroding metal.

Question 14

Magnesium (Mg) ribbons turn white when exposed to sulphur dioxide (SO_2) gas. The following redox reaction takes place.



Which reactant acts as the reducing agent in this reaction?

- A. SO_2
- B. Mg
- C. Both SO_2 and Mg
- D. Neither of them

Question 15

Food containing oils and fats becomes rancid and turns to give a bad smell.

Food becomes rancid due to _____.

- A. reduction of oils and fats.
- B. oxidation of oils and fats.
- C. fermentation of oils and fats.
- D. corrosion of oils and fats.

Question 16

Sohan is having a great day doing experiments in the chemistry laboratory!

Experiment 1: He **decomposes** a sample of green ferrous sulphate (FeSO_4) crystals into ferrous oxide (Fe_2O_3) and two gases, sulphur dioxide (SO_2) and sulphur trioxide (SO_3).

Experiment 2: In a second experiment, he **decomposes** limestone (CaCO_3) to form quick lime (CaO), releasing carbon dioxide (CO_2) gas.

Help him identify the two chemical reactions.

- A. **Experiment** is endothermic.
- B. **Experiment** is exothermic.
- C. **Experiment** is endothermic.
- D. **Experiment** is exothermic.

Question 17

Tina adds water to quick lime to whitewash her bedroom wall.

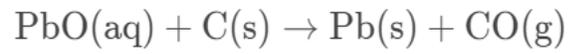
What is the product obtained during this combination reaction?

Note: Let's remember, quick lime is calcium oxide (CaO).

- A. $\text{CaO}(\text{s}) + \text{H}_2\text{O}(\text{l}) \rightarrow \text{CaO}_2(\text{s}) + \Delta$
- B. $\text{CaO}(\text{s}) + 2\text{H}_2\text{O}(\text{l}) \rightarrow \text{CaOH}_2(\text{aq}) + \text{H}_2(\text{g}) + \text{O}_2(\text{g}) + \Delta$
- C. $\text{CaO}(\text{s}) + \text{H}_2\text{O}(\text{l}) \rightarrow \text{Ca}(\text{OH})_2(\text{aq}) + \Delta$
- D. $\text{CaO}(\text{s}) + \text{H}_2\text{O}(\text{l}) \rightarrow \text{CaO}_2(\text{s}) + \text{H}_2(\text{g}) + \Delta$

Question 18

In his laboratory, Antoine Lavoisier studies how treating lead oxide (PbO) with carbon (C) produces pure lead (Pb).



Choose the correct statements from the following.

- A. PbO is oxidized by losing oxygen.
- B. PbO is reduced by losing oxygen.
- C. C is oxidized by gaining oxygen.
- D. C is reduced by gaining oxygen.

Answer Key

1. B
2. C
3. D

- 4. B
- 5. C
- 6. C
- 7. A
- 8. D
- 9. C
- 10. B
- 11. A
- 12. B
- 13. A
- 14. B
- 15. B
- 16. A, C
- 17. C
- 18. B, C