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CHEMISTRY HOLYPACK S1 A & B

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- **Instructions:**
  This paper consists of **19questions**
  - ✓ Attempt **all** questions. Give succinct answers
  - ✓ Respect the order of the questions
  - ✓ **Select only a correct answer .A mark will be deducted for a bad hand selection**
  - ✓ Separate answers of two different questions **using a horizontal line**

1. What is the correct definition of a **salt** in chemistry?

A. A compound that increases the concentration of hydrogen ions in a solution
B. A substance that donates electrons in a chemical reaction
C. An ionic compound formed by the reaction of an acid and a base
D. A molecule composed entirely of carbon and hydrogen

2. Table for Completing the Formula of Salt, Name of Salt, Type of Salt, and Acid Derived**(one example is done for you)**

Acid + Base Reaction	**Formula of Salt**	**Name of Salt**	**Type of Salt**	**Acid Derived**
Hydrochloric acid (HCl) + Sodium hydroxide (NaOH)	NaCl	Sodium chloride	Normal	Hydrochloric acid
		Potassium sulfate		
Carbonic acid (H_2CO_3) calcium hydroxide (Ca(OH)2.			Acidic salt	

……+ sodium hydroxide		Sodium phosphate		Phosphoric acid

3. How is oxygen gas typically prepared in a laboratory setting?

A. By heating calcium carbonate ($CaCO_3$)
B. By heating potassium nitrate (KNO_3)
C. By heating potassium permanganate ($KMnO_4$)
D. By heating hydrogen peroxide (H_2O_2) with manganese dioxide (MnO_2)

4. Which of the following is a common method for the preparation of oxygen in the laboratory?

A. Heating sodium bicarbonate ($NaHCO_3$)
B. Decomposing potassium chlorate ($KClO_3$) with the help of a catalyst
C. Electrolyzing brine solution
D. Both **B** and **C**

5. Which chemical reaction is used to test for the presence of oxygen gas?

A. The reaction of oxygen with a glowing splint
B. The reaction of oxygen with a lit candle
C. The reaction of oxygen with hydrogen to form water
D. The reaction of oxygen with sodium metal

6. When oxygen gas is passed over a glowing splint, what happens?

A. The splint goes out.
B. The splint reignites.
C. The splint turns into ash.
D. No visible change occurs.

7. What is the catalyst commonly used to speed up the decomposition of hydrogen peroxide (H_2O_2) during oxygen preparation?

A. Copper sulfate ($CuSO_4$)
B. Manganese dioxide (MnO_2)
C. Potassium chloride (KCl)
D. Calcium carbonate ($CaCO_3$)

8. What is the pH range of an acidic solution?

A. 0 to 7
B. 7 to 14
C. 0 to 14
D. 4 to 7

9. What does the pH scale measure?

A. The concentration of oxygen in a solution
B. The concentration of hydrogen ions (H^+) in a solution
C. The color change of an indicator in a solution
D. The boiling point of a solution

10. What pH value indicates a neutral solution?

A. 0
B. 7
C. 14
D. 5

11. What is the pH range of an alkaline (basic) solution?

A. 0 to 7
B. 7 to 14
C. 4 to 7
D. 0 to 14

12. Which of the following is a common indicator used to test pH?

A. Potassium permanganate
B. Litmus paper
C. Sodium chloride
D. Sulfuric acid

13. What happens to litmus paper in an acidic solution?

A. It turns red.
B. It turns blue.
C. It stays purple.
D. It turns yellow.

14. What color does phenolphthalein turn in an alkaline solution?

A. Red
B. Blue

C. Colorless
D. Pink

15. Which of the following is an indicator that changes color from yellow to red as pH decreases?

A. Methyl orange
B. Universal indicator
C. Litmus paper
D. Phenolphthalein

16. A solution has a pH of 11. What type of solution is it?

A. Acidic
B. Neutral
C. Alkaline (basic)
D. Neither acidic nor alkaline

17. What is the pH of a strong acid like hydrochloric acid (HCl) when dissolved in water?

A. 1
B. 7
C. 10
D. 14

18. Match the salt with its decomposition products when heated.
Answer will be like **1→ H**

Salt	**Decomposition products**
1. Copper(II) carbonate ($CuCO_3$)	A. Potassium nitrite (KNO_2) + Oxygen (O_2)
2. Lead(II) nitrate ($Pb(NO_3)_2$)	B. Sodium carbonate (Na_2CO_3) + Water (H_2O) + Carbon dioxide (CO_2)
3. Calcium carbonate ($CaCO_3$)	C. Lead(II) oxide (PbO) + Nitrogen dioxide (NO_2) + Oxygen (O_2)
4. Sodium bicarbonate ($NaHCO_3$)	D. Copper(II) oxide (CuO) + Carbon dioxide (CO_2)
5. Potassium nitrate (KNO_3	E. Calcium oxide (CaO) + Carbon dioxide (CO_2)

19. **True or False** questions on **separation techniques of mixtures**:
a) Filtration is used to separate an insoluble solid from a liquid.

b) Distillation can be used to separate a mixture of two liquids based on their boiling points.
c) Sublimation is a technique used to separate a solid from a liquid in a mixture.
d) Chromatography is a method used to separate different colored substances in a mixture.
e) Centrifugation is used to separate mixtures of substances with similar densities.
f) Evaporation is used to separate a dissolved solid from a liquid by heating the mixture.
g) Magnetic separation is used to separate components based on their density.
h) A separating funnel can be used to separate a solid and liquid mixture.
i) Separation of oil and water can be done using a separating funnel.

HAPPY HOLIDAY!!!