

## Chapter 11. Practical Work

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### Solution 1:

On heating certain solids they don't melt and directly get converted to their gaseous form, this process of direct conversion of solids to their gaseous form is called as sublimation. For ex: camphor and ammonium chloride undergo sublimation.

### Solution 2:

Decrepitation is a process of breaking up of solid particles on heating, which makes a crackling sound. Lead nitrate decrepitate on heating.



Lead nitrate

### Solution 3:

- (a)  $\text{Zn}(\text{NO}_3)_2$  = white
- (b)  $\text{Cu}(\text{NO}_3)_2$  = blue
- (c)  $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$  = blue
- (d)  $\text{CuSO}_4$  = pale green
- (e)  $\text{K}_2\text{Cr}_2\text{O}_7$  = orange
- (f)  $\text{PbS}$  = black

### Solution 4:

1. $\text{NH}_3$	$\text{Cl}_2$
The gas is colourless and pungent odour it turns blue litmus red and it produces white dense fumes when a rod dipped in conc HCl is brought near the gas.	The gas is greenish yellow and has a pungent smell
2. $\text{CO}_2$	$\text{SO}_2$
It is odourless and colourless, it turns lime water milky and on passing excess of gas through it the milkiness disappears.	It is colourless and smells like burning sulphur it turns orange potassium dichromate paper green.
3. $\text{H}_2\text{S}$	$\text{SO}_2$
It is colourless and smells like rotten eggs, it turns lead acetate paper black.	Colourless and it smells like burning sulphur it turns orange potassium dichromate paper green.
4. $\text{H}_2$	$\text{O}_2$
It will extinguish a lighted splinter and the gas burns with a 'pop' sound.	It will relight a glowing splinter and absorbed by an alkaline solution of pyrogallol to turn it dark brown.

**Solution 5:**

1. Hard water	Soft water
By stirring hard water thoroughly with ordinary soap we get scum	By stirring hard water thoroughly with ordinary soap we get foam or lather formation
2. Temporary hardness	Permanent hardness
Addition of soap to the boiled water with temporary hardness makes the water soft and then it gives lather easily.	Addition of soap to the boiled water with permanent hardness does not make the water soft and its hardness still persist.
3. Soaps	Detergents
It do not form lather with hard water	It can form lather with hard water

**Solution 6:****a. Chemical test to verify that given piece of metal is zinc not copper:**

Take a small quantity of the given piece of metal in a clean and dry test tube. To that 10 ml of dilute sulphuric acid is added, if effervescence are observed and a colourless and odourless gas which burns with a pop sound when a burning splinter is brought near its mouth and some water droplets are formed then the metal is zinc not copper.

**b. Chemical test to distinguish between  $\text{Na}_2\text{S}$  and  $\text{Na}_2\text{CO}_3$ .**

$\text{Na}_2\text{S}$	$\text{Na}_2\text{CO}_3$
Take a small quantity of the given piece of metal in a clean and dry test tube. To that 10 ml of dilute sulphuric acid is added, a colourless gas is released smelling of rotten egg. The gas released is $\text{H}_2\text{S}$ .	Take a small quantity of the given piece of metal in a clean and dry test tube. To that 10 ml of dilute sulphuric acid is added, a colourless gas and odourless gas is released. The gas released is $\text{CO}_2$ .
$\text{Na}_2\text{S} + \text{H}_2\text{SO}_4 \longrightarrow \text{Na}_2\text{SO}_4 + \text{H}_2\text{S}$	$\text{Na}_2\text{CO}_3 + \text{H}_2\text{SO}_4 \longrightarrow \text{Na}_2\text{SO}_4 + \text{H}_2\text{O} + \text{CO}_2$
This gas turns lead acetate paper black.	This gas turns lime water milky.
$\text{H}_2\text{S} + \text{Pb}(\text{CH}_3\text{COO})_2 \longrightarrow \text{PbS} + 2\text{CH}_3\text{COOH}$	$\text{CO}_2 + \text{Ca}(\text{OH})_2 \longrightarrow \text{CaCO}_3 + \text{H}_2\text{O}$
Lead acetate                  black	Lime water                  milky

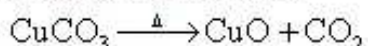
**c. flame test:**

- Clean the free end of the platinum wire fused in a glass rod, by repeatedly heating it in a flame and again dipping it in conc. hydrochloric acid taken in a watch glass.
- Place it on non luminous part of the flame if it imparts colour then dip it in HCl again, until it fails to impart colour to the flame.
- Touch the tip of clean platinum wire with conc. HCl and little substance, and place it in non luminous part of Bunsen burner flame.
- The colour of the flame is observed by the naked eye, with sodium it shows a golden yellow flame.

**Solution 7:**

Effect of heat on:

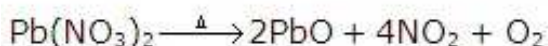
a. Copper carbonate:



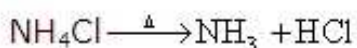
b. Washing soda:



c. Lead nitrate:



d. Ammonium chloride:

**Solution 8:**

- (a) Rotten egg
- (b) Burning sulphur
- (c) Nitrogen dioxide
- (d) Alkali
- (e)  $\text{Ca}(\text{OH})_2$
- (f) Lilac
- (g) Brick-red

**Solution 9:**

Point sources of water pollution: Sources of water pollution that discharge directly into the water source are called as point sources of water pollution.

For ex: factories

Non point sources of water pollution: sources of water pollution that remain scattered and don't have specific locations for the discharge of pollutants into particular water bodies are called as non point sources of water pollution.

For ex: run off from fields.

**Solution 10:**

Parameters which should be determined to test quality of water are:

Parameters	Acceptable
1. Hardness	It should be between 200-600mg
2. pH	It should be between 7.00-8.00
3. Specific conductance	For 25°C is $300 \times 10^{-6}$ mhos