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Grade -7(CHEMISTRY)
Worksheet

NAME: _____ **Roll No: _____**

Lesson-5 Acids , bases and salts

Q.1 Write properties of acid.

Ans: Acids have sour taste. Acids turns blue litmus into red. Acids react with metals and release hydrogen.When non metal oxides reacts with water acids are formed. Acids neutralize base.

Q.2 State the nature of an acid.

Ans: Acids are corrosive by nature. They burn clothes , paper , wood , skin etc.

Q.3 Write the effect of an acid on following indicators.

Ans: Blue litmus ---- Red

Methyl orange --- Red

Phenophthalein----- Colourless

Q.4 State any Two uses of H_2SO_4.

Ans: It is used in petroleum refining.

It is used in making detergents ,paints ,fertilizers and salts.

Q.5 State the name of the acids used in various things.

Ans: As Preservatives ---- Vinegar

Eye drops---- Boric acid

Aerated drinks ---- Carbonic acid

In baking powder ---- Tartaric acid

Q.6 Write the chemical formula.

1. Sulphuric acid-----H_2SO_4

2. Hydrochloric acid ----- HCl

3.Nitric acid------HNO_3

4. Sulphurous acid ------ H_2SO_3

5. Phosphoric acid ---------- H_2PO_4

6. Carbonic acid -------- H_2CO_3

7. Oxalic acid---------- $C_2H_2O_4$

Q.7 Write two preparation of an acid.

1. By the combination between hydrogen and non - metal

$H_2 + Cl_2 \xrightarrow{\text{diffused sunlight}} 2HCl$

2. By dissolving sulphur trioxide in water.

$SO_3 + H_2O \longrightarrow H_2SO_4$

Q.8 Name the strong acid.

Ans: HCl , H_2SO_4 , HNO_3

Q.9 Name the weak acid.

Ans: H_2SO_3 , H_2CO_3 , HNO_2

Q.10 Fill the table.

Symbol	**Basicity**
HCl	1
H_2SO_4	2
$C_2H_2O_4$	2
H_3PO_4	3
CH_3PO_4	1

Q.11 What do you mean by alkali?

Ans: Bases which dissolve in water are called alkalis.

Q.12 Properties of base.

Ans: Bases are bitter in taste.

Their aqueous solutions are called alkalis.

Alkalis have soapy touch .

Bases turns red litmus into blue.

Bases are mostly oxides.

Bases neutralize acid.

Q.13 Give eight name of bases.

Sodium oxide---Na_2O

Copper Oxide ---- CuO

Zinc Oxide ---- ZnO

Potassium hydroxide ---KOH

Sodium Hydroxide------- NaOH

Calcium hydroxide---------- $Ca(OH)_2$

Aluminium hydroxide------- $Al(OH)_3$

Ammonium hydroxide-------- NH_4OH

Q.14 Give the names of alkalis.

Ans: Potassium hydroxide---- KOH

Sodium hydroxide--- NaOH

Ammonium Hydroxide--- NH_4OH

Calcium Hydroxide ----- $Ca(OH)_2$

Magnesium Hydroxide ---- $Mg(OH)_2$

Q.15 Name two examples of each of the following.

1. Monobasic acid--- HCl , CH_3COOH

2. Mono acidic base---- NaOH , KOH

3. Dibasic acid---------- H_2SO_4 , H_2CO_3

4. Di acidic base ---------- $Ca(OH)_2$, $Cu(OH)_2$

5. Tribasic acid --------- H_3PO_4

6. Triacidic base -------$Al(OH)_3$

Q.16 Give two preparation of base.

1. By combination of metal and oxygen.

$4Na + O_2$ ----------> $2Na_2O$

$2Ca + O_2$ ----------> $2CaO$

2. By dissolving basic oxide.

$Na_2O + H_2O$ ----------> 2 NaOH

$K_2O + H_2O$ ----------> 2KOH

Q.17 What is amphoteric substances?

Ans: Some metallic oxides or hydroxides react with acid as well as alkalis to produce salt and water such substances are called amphoteric substances.

E.g. $ZnO + 2NaOH$ ----------> $Na_2ZnO_2 + H_2O$

$ZnO + 2HCl$ ----------> $ZnCl_2 + H_2$

Q.18 Give two neutralization reaction with examples.

General format : Acid + Base ----------> Salt + water

$HCl + NaOH$ ----------> $NaCl + H_2O$

$ZnO + 2HCl$ ----------> $ZnCl_2 + H_2O$

Q.19 Explain importance of neutralization reaction.

Ans: If the soil is acidic it is treated with lime to make it neutral.

If the soil is basic it is treated with acidic sulphate salts to make it neutral.

When we suffer acidity or indigestion , we tackle this problem by taking antacid like MgO.

Bee sting contain formic acid .When bee bite we can cure it by using "CALAMINE"

However wasp contains alkaline substances .This can be treated by using vinegar.

Q.20 Which of the base is used as an electrolyte?

Ans : KOH

Q.21 Which base is used to make cement?

Ans: $Ca(OH)_2$

Q.22 Which base is used to manufacture fertilizer?

Ans: NH_4OH

Q.23 Name the type of salts with examples.

Ans: Normal salts ----- NaCl

Acid salts ---------- $NaHSO_4$

Basic salts ---------- Zn(OH)Cl

Mixed salt--------- $K_2SO_4 \cdot Al_2(SO_4) \cdot 24H_2O$

Q.24 Write any two preparation of salts.

Ans : Neutralization of acids by bases.

$HCl + NaOH$ ----------> $NaCl + H_2O$

Reaction of metal oxides with acids.

$CaO + 2HCl$ ----------> $CaCl_2 + H_2O$

Q.25 Name any four hydrated salts.

Ans: Blue vitriol ---------- $CuSO_4 \cdot 5 H_2O$

Green vitriol ---------- $FeSO_4 \cdot 7 H_2O$

Washing soda ---------- $Na_2CO_3 \cdot 10 H_2O$

Gypsum --------- $CaSO_4 \cdot 2H_2O$

Q.26 State properties of salts.

Salts could be acidic or basic or neutral.

Salts are good conductor of electricity.

Salts reacts with acids and form another salt and another acid.

Q.27 Uses of salts.

Use	Salt formulae
Puffing up breads	$NaHCO_3$
Preparation of chlorine	NaCl
To crystal soap	NaCl
Laundry	Na_2CO_3
Fungicide	$CuSO_4.5\ H_2O$
Gunpowder	KNO_3
Blue black inks	$FeSO_4.7H_2O$

Lesson- 1 Elements and compounds

Q.28 Learn element symbol.

Name	Symbol
Hydrogen	**H**
Helium	**He**
Lithium	**Li**
Berylium	**Be**
Boron	**B**
Carbon	**C**
Nitrogen	**N**
Oxygen	**O**
Flourine	**F**
Neon	**Ne**
Sodium	**Na**
Magnesium	**Mg**
Aluminium	**Al**
Silicon	**Si**
Phosphorous	**P**
Sulphur	**S**
Chlorine	**Cl**
Argon	**Ar**
Potassium	**K**
Calcium	**Ca**

Q.29 Name five non metal elements.

Carbon , Phosphorous , Nitrogen , Oxygen , Sulphur

Q.30 Name five metals elements.

Sodium, Potassium , Calcium , copper , Zinc

Q.31 Name all noble gases with symbols.

Helium - He , Neon - Ne , Argon- Ar , Krypton - Kr , Xenon- Xn , Radon - Rn

Q.32 Write the valencies of following ions.

Ions	Valency
Carbonate	2
Nitrate	1
Hydroxide	1
Chlorine	1
Sulphide	2
Iodide	1
Oxide	2
Phosphate	3
Sulphate	2
Hydrogencarbonate	1

Lesson -2 Physical change and Chemical change

Q.33 Differentiate following examples into Physical change and chemical change.

Ans: Burning of candle, Curd from milk, melting of wax , action of heat on $CuCO_3$, addition of salt to water, Boiling of water.

Physical change: Burning of candle , Melting of wax , Boiling of water , Addition of salt to water

Chemical change : Curd from milk , Action of heat on $CuCO_3$

Q.34 What is physical change?

Ans: A physical change is change in which no new substance is formed and chemical composition of substance is not altered.

Q.35 What is chemical change?

Ans: A chemical change is permanent change in which original substance loses its own composition and properties.

Q.36 Why is burning of paper is a chemical change?

Ans: As a result of burning of paper we get ash , water vapour , CO_2 from paper .We Cannot combine ash , water vapour , CO_2 to form paper. That's why it is chemical change.

Q.37 What is chemical equation?

Ans: The representation of chemical reaction by symbol and formulae of reactants and products involved in it. It is called chemical equation.

Q.38 State the law of conservation of mass.

Ans: During the chemical reaction mass is neither be created nor destroyed.

Q.39 Write chemical equation in symbol and formulae.

Ans: a) Iron + Sulphur ---------->Iron(II)sulphide

Fe + S----------> FeS

b) Water + Carbon dioxide ----------> Carbonic acid

$H_2O + CO_2$ ----------> H_2CO_3

c) Calcium Carbonate ----------> Calcium oxide + Carbon dioxide

$CaCO_3$----------> $CaO + CO_2$

d) Silver Chloride ----------> Silver + Chlorine

$2AgCl$ ----------> $2Ag + Cl_2$

Q.40 Write the characteristics of physical change.

Physical change is temporary change.

No new substance is formed. The composition of original substance is not altered.

There is no significance energy is involved.

Only physical properties changes like colours , shape , size.

Q.41 Write the characteristics of chemical change.

One or more products are formed.

Chemical change is permanent change .

The composition of original substance is totally changed.

This change can never reversed.

Energy is either absorb or elvove in chemical change.

Q.42 Write information are given by balanced equation.

A number of molecules of the each of reactants and products are taking part in the reaction.

Number of atoms of each element of the reactant and product are taking part in the reaction.

It enables us to find the mass of the reactants is equal to the mass of the products.

Q.43 What is decomposition reaction? Give one example in which catalyst is used?

Ans: A type of chemical reaction in which a substance breaks into two or more simple substance is known as decomposition reaction.

e.g. $2KClO_3$ ----------> $2KCl + 3\ O_2$ (MnO_2 is catalyst, heat is provided)

Lesson-5 Acids , bases and salts

Q.44 What is the difference between strong acid and weak acid? Give two examples of each.

Strong acid	Weak acid
1. Acids that undergoes complete dissociation in aqueous solution producing a high concentration of hydrogen ions are called strong acids.	1. Acids that undergoes partial dissociation in aqueous solution producing a low concentration of hydrogen ions are called weak acids.
2. HCl, H_2SO_4	2. carbonic acid, formic acid.

Q.45 Define the basicity of an acid and differentiate between monobasic , dibasic , tribasic acids.

Ans: The basicity of an acid is the number of hydrogen ions produced by the dissociation of one molecule of an acid when dissolved in water.

Monobasic acid	Dibasic acid	Tribasic acid
Acids which dissociate on dissolving in water to produce one hydrogen ion (H^+) per molecule of the acid are called monobasic acids.	Acids which dissociate on dissolving in water to produce two hydrogen ion (H^+) per molecule of the acid are called dibasic acids.	Acids which dissociate on dissolving in water to produce three hydrogen ion(H^+) per molecule of the acid are called tribasic acids.
HCl, CH_3COOH	H_2SO_4 , H_2CO_3 , H_2SO_3	H_3PO_3,H_3PO_4

Q.46 While diluting a concentrated acid why is it recommended that the acid should be added to water and not water to the acid?

Ans: The process of dissolving an acid in water is a highly exothermic reaction. Care must be taken while mixing concentrated acids with water . Always add acid to water and not the other way .but if water is added to a concentrated acid the heat generated acid , may cause the mixture to splash out and cause burns. The glass container may also break due to excessive heating.

Q.47 What happens when an acid reacts with a base? Explain by giving a suitable example what is the special name for such a reaction?

Ans: When an acid reacts with a base , it forms salt and water. This reaction is called neutralization reaction.

For example: When HCl reacts with sodium.

Q.48 What is the difference between a strong base and a weak base? Explain with examples.

Strong base	Weak base
Bases undergo complete dissociation in aqueous solution and produce a high concentration of hydroxyl ions (OH) in solution are called strong bases.	Bases that undergo partial dissociation in aqueous solution and produce low concentration of hydroxyl ions(OH^-) in solution are called weak bases
KOH , NaOH	$Mg(OH)_2$, NH_4OH

Q.49 What are indicators? Name the three common acid base indicators and give their colour in acidic and base solution.

Ans: An acid - base indicator is a chemical substance is used to identify whether given substance is an acid or a base by a sharp change in its colour.

The three most common acid - base are as follows in table:

Indicator	Colour change		
	Neutral	Acidic	Basic
Litmus	Purple	Red	Blue

Methyl orange	Orange	Red	Yellow
Phenophathalein	Colourless	Colourless	Pink

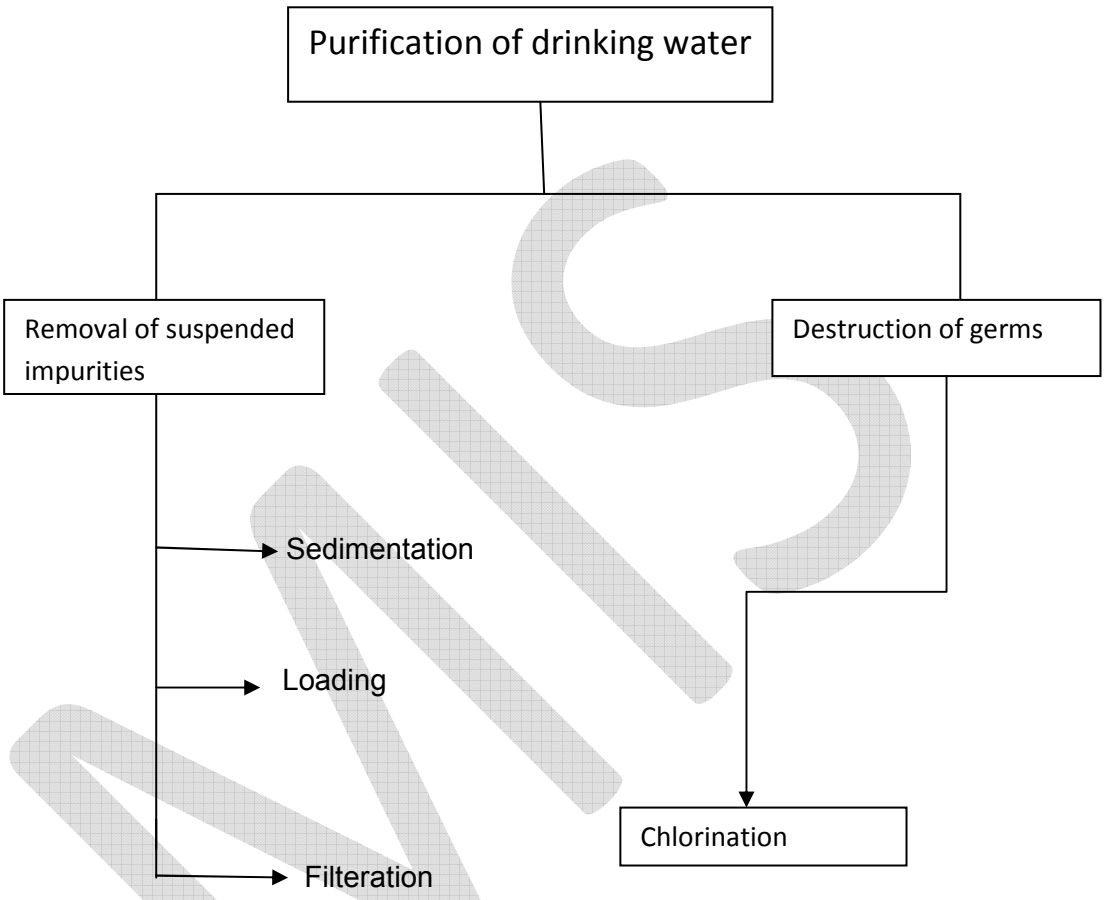
Lesson - 6 Water

Q.50 Mention the ways which

a) Suspended impurities can be removed from drinking water

b) Germs present in drinking water are destroyed.

Ans:



Q.51 Explain anomalous expansion of water and its significance.

Ans: Water contracts until the temperature reaches 4ºC and it expands when it is called below 4ºC. This is called anomalous expansion of water.

The density of water is maximum at 4ºC . As water is cooled below 4ºC ,it expands instead of contracting . Thus , The volume of ice at 0º Cis greater than the volume of water at 4ºC.

Q.52 How does washing soda remove hardness of water? Write associated chemical equation.

Ans: Washing soda reacts with chlorides and sulphates of calcium and magnesium to form their respective insoluble carbonates can be filtered out and the water becomes soft.

$CaCl_2 + Na_2CO_3 \text{----------} > CaCO_3 + 2\ NaCl$

$MgSO_4 + Na_2CO_3 \text{----------} > MgCO_3 + Na_2SO_4$

Q.53 What is water pollution? Mention three causes for water pollution.

Ans: The release of substance into surface water or groundwater which makes the water unfit for use by humans or affects living organism and their environment is called water pollution.

Causes:

Domestic sewage

Chemical pollution

Thermal pollution