1st Term Worksheet

Subject – Chemistry

Class – VIII

Name : **Sec. :**

Chapter – 2
[Physical and Chemical Changes]

Keywords: **[25]**

Chemical change: _____

_____

Physical change: _____

_____

Products: _____

_____

Reactants: _____

Exercise: **[26-27]**

[A] Multiple Choice Questions: [26]

(i) Which of the following is not a characteristic of physical change?

(a) Formation of new substance (b) reversible

(c) Temporary (d) change in physical properties

(ii) A physical change involves

(a) no change in energy (b) energy is absorbed

(c) energy is released (d) none of these

(iii) Which of the following is not a chemical change?

(a) photosynthesis (b) digestion

(c) tearing a paper (d) rusting of iron

(iv) Which of the following is a characteristic of chemical change?

(a) permanent (b) reversible

(c) no energy change (d) composition does not change

[B] Fill in the blanks: [27]

1. Physical changes are _____ and can be _____ by changing the conditions.
2. Chemical changes cannot be reversed by simple _____ methods.
3. A new product formed during a chemical change is completely different from original substance in respect of _____ and properties.
4. Chemical changes involves either _____ or _____ of energy.

[C] Write T for true and F for false statements: [27]

1. Physical changes are permanent and cannot be reversed. _____
2. Chemical changes involves significant energy changes. _____
3. Products formed in a chemical reaction has same properties as that of the reactants. _____
4. Sublimation of camphor is an example of a physical change. _____

[D] Give one word answer for the following: [27]

1. Phase transition from solid to gas without entering in the liquid phase.

   _____

2. Substances that react in a chemical reaction.

   _____

3. Substances formed during a chemical reaction.

4. Chemical reaction that occurs with release of heat energy.

5. Another name for the chemical change.

[E] Classify the following into physical and chemical change: [27]

Burning of paper, photosynthesis, breaking a glass tumbler, sublimation of camphor, curdling of milk, digestion, cooking of food, conversion of liquid water into water vapours, rootting of eggs, ripening of fruit, decaying of leaf

Physical change:

Chemical change:

[F] Answer the following questions: [27]

1. What is a physical change? Explain it with two examples.

Ans-

2. Define sublimation. How is the sublimation of camphor a physical change?

Ans-

3. What is a chemical reaction? Give an example of a chemical reaction.

Ans-

4. Explain how the total mass of substances remain unchanged during a chemical change.

Ans-

5. Write any three characteristics of physical and chemical changes.

Ans-

6. Differentiate between a physical and chemical change.

Ans-

Chapter – 3
[Elements, Compounds and Mixtures]

Check Point: **[32]**

[A] Answer the following questions:

1. List the differences between compounds and mixtures.

Ans. _____

2. Categorize the following as mixtures and compounds.
Air, water, iron [II] sulphide, ice-cream, common salt solution, brass, milk and blood

Ans. _____

3. Give an example of a mixture of solid in gas.

Ans. _____

4. Give two examples of each of the following types of mixtures:
(a) Liquid in liquid (b) Solid in liquid (c) Gas in liquid

Ans. _____

[B] Fill in the blanks: [32]

1. Mixture contains two or more elements, or compounds or _____.
2. Constituents of mixtures _____ their properties.

[C] Answer the following questions: [39]

1. What do you mean by the term separation of mixtures? Give reasons, why the constituents of mixtures are separated?

Ans.

2. State any five methods of separating a solid-solid mixture.

Ans.

3. Explain the technique used in separating the following substances:

(a) Pure water from impure water

(b) Cream from milk

(c) Chalk from a mixture of chalk and water

(d) Kerosene oil from a mixture of kerosene oil and water

Ans.

4. Explain the following terms with a suitable example:

(a) Winnowing (b) Decantation (c) Centrifugation

(d) Evaporation

Ans. _____

5. Name the technique used for separation of -

(a) A mixture of a soluble solid in a liquid

_____

(b) A mixture of soluble solid in a liquid.

_____

(c) A mixture of large and small-sized particle.

_____

(d) A mixture of two immiscible liquids with different densities

_____

Keywords: **[39]**

Compound: _____

_____

Crystal: _____

_____

Crystallization: _____

_____

Decantation: _____

_____

Element: _____

Filtration: _____

_____

Mixture: _____

_____

Sedimentation: _____

Sieving: _____

_____

Sublimation: _____

_____

Winnowing: _____

_____

Exercise: **[40-41]**

[A] Multiple Choice Questions: [40]

(i) An element is made up of

(a) one kind of atoms (b) different kinds of atoms

(c) different kinds of molecules (d) none of these

(ii) Which of the following is a compound?

(a) N_2 (b) NaCl

(c) S (d) Sand

(iii) Which of the following is a mixture?

(a) $NaCl+CaCO_3$ (b) $Na_2 CO_3$

(c) H_2 (d) none of these

(iv) Which of the following is a homogeneous mixture of two solids?

(a) air (b) brass

(c) graphite (d) nitrogen

(v) Which of the following technique to be used to separate chalk from the mixture of chalk and water?

(a) Filtration (b) Sedimentation

(c) Evaporation (d) Sieving

[B] Fill in the blanks: [41]

1. Method used for separating oil in ink is called _____.
2. Handpicking is used for mixture that contains particles with different _____, _____ and _____.
3. Mixture of solid particles with one is heavier than the other, can be separated by _____ and _____.
4. Separation of iron articles in a junk yard uses the technique of _____.

[C] Give reasons for the following statements: [41]

1. A mixture of oil and water retains the properties of its constituents.

_____

_____

_____

_____

_____

_____

_____

_____

_____

2. Magnetic separation cannot be used to separate a mixture of copper and sulphur.

3. Sand particles are separated from gravel at construction sites using sieving.

[D] Match the items in column I with the correct choices in column II: [41]

	Column I		**Column II**
1.	Alcohol from mixture of alcohol and water	a.	Evaporation
2.	Charcoal from a mixture of charcoal and water	b.	Crystallization
3.	Copper sulphate crystals from copper sulphate in water	c.	Fractional distillation
4.	Sulphur from a mixture of sulphur and charcoal	d.	Sedimentation
5.	Iron from a mixture of iron and lead	e.	Magnetic separation

[E] Draw a neat and well-labelled diagram for the technique used for separation of – [41]

1. Kerosene oil from a mixture of kerosene and water

2. Salt from the sea-water

3. Chalk powder from a mixture of chalk and water

4. Ammonium chloride from a mixture of ammonium chloride and sodium chloride

[F] Define the following terms with suitable examples: [41]

1. Sublimation: _____

2. Crystallization: _____

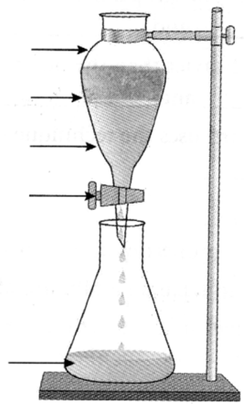
3. Evaporation: _____

4. Filtration : _____

5. Decantation: _____

6. Winnowing: _____

[G] Write the name of the process involved in the following diagram and also label the markings made in the diagram: [42]



Chapter – 4
[Atomic Structure]

Check Point: **[46]**

[A] Answer the following questions:

1. What do you understand by the term ‘atom’?

Ans.

2. Define the term molecule.

Ans.

3. Why are atoms called building blocks of matter?

Ans.

4. Name the philosophers who have attempted to give model of an atom.

Ans. _____

5. Describe the main postulates of the Dalton's atomic theory.

Ans. _____

[B] Fill in the blanks: [55]

1. The three fundamental particles of the atom are _____, _____ and _____.
2. The nature of charge on proton and electron are _____ and _____ respectively, while neutron has _____ charge.
3. _____ suggested that the atom has a heavy and positively charged nucleus.
4. The electron was discovered by _____ while neutron was discovered by _____.
5. Nucleus of an atom is composed of _____ and _____.

[C] Answer the following questions: [55]

1. What do you understand by the terms atomic number and mass number of the elements?

Ans. _____

2. Atomic number of an element is 8. What does it tell about the element from this?

Ans. _____

3. The atomic number of an element is 92 and the mass number is 238. Calculate the number of subatomic particles of the atom.

Ans. _____

_____

_____

_____

_____

_____

_____

_____

_____

_____

[D] State whether the following statements are True or False: [58]

1. Removal or addition of electrons into the atom leads to the formation of ions. _____
2. Loss of electrons in atom gives rise to negative ions. _____
3. Positive and Negative ions combine to form ionic compounds. _____
4. Gain of electron gives rise to the formation of negative ion. _____

Keywords: **[59]**

Anion : _____

Cation: _____

Chemical bond: _____

_____

Isotopes: _____

Valency: _____

Valence electrons: _____

Valence shell: _____

Exercise: **[60-62]**

[A] Multiple Choice Questions: [60]

(i) The fundamental particles of an atom are

(a) electrons (b) protons

(c) neutrons (d) electrons, protons and neutrons

(ii) The electron was discovered by

(a) J.J Thomson (b) Rutherford

(c) John Dalton (d) Neil Bohr

(iii) The neutron was discovered by

(a) Rutherford (b) James Chedwick

(c) Eugen Goldstein (d) J.J Thomson

(iv) The nuclear model of atom was proposed by

(a) Rutherford (b) Neil Bohr

(c) J.J Thomson (d) Eugen Goldstein

(v) The maximum number of electrons that can be present in an orbit are

(a) $2n^2$ (b) $2n^{2+1}$

(c) 2n (d) none of these

(vi) The maximum number of electrons in outermost orbit required to comply the octet rule are:

(a) 8 (b) 4

(c) 16 (d) 5

[B] Fill in the blanks: [60]

1. Rutherford showed that _____ rays come out of unstable nuclei.
2. Electrons revolve around the nucleus in fixed paths, are called _____.

3. Number of protons and number of neutrons of an atom form its _____.

4. Atomic number is the number of _____ present in the nucleus of an atom.

5. _____ is the combining capacity of atom with other atoms to form a molecule or a compound.

[C] Fill in the columns of the given tables and answer the respective questions: [60]

1. An atom usually contains three main particles. Complete the following table:

No.	Name of the particles	Kind of charge each carries
1		
2		
3		

2. A, B, C, and D are elements whose atomic numbers are given below. Write down the electronic configuration for each one of these elements:

No.	Element	At. No.	Electronic Configuration
1	A	16	
2	B	19	
3	C	18	
4	D	13	

3. The number of protons, neutrons and orbital electrons in particles A to D are given in the following:

Particle	Protons	Neutrons	Electrons
A	3	4	2
B	9	10	10
C	17	18	17
D	17	20	17

a. Choose from the table, which particles represent a cation, a anion, a pair of isotope.

Ans. _____

b. Write the chemical formula of the compound that would be formed between C and hydrogen.

Ans. _____

c. What will be the formula of compound formed by A and B only?

Ans. _____

4. Chlorine is an element with atomic number 17. It has two isotopes having mass numbers 35 and 37.

a. What is meant by the term atomic number?

Ans. _____

_____

_____

b. Write down electronic configuration of the chlorine atom.

Ans. _____

_____

c. Complete the following table.

Isotope	No. of electrons	No. of protons	No. of neutrons
${}_{17}Cl^{35}$	17	—	18
${}_{17}Cl^{37}$	17	17	—

5. Choose from the table letters (A to E) that represent:

a. a pair of isotope

Ans. _____

b. An element with mass number 19

Ans. _____

c. An element having mass number 37

Ans. _____

Element	Neutron	Proton	Electron
A	22	18	18
B	18	17	17
C	10	9	9
D	7	7	7
E	20	17	17

[D] State whether the following statements are true or false: [62]

1. Atom is an indivisible particle. _____
2. Neutron has a positive charge. _____
3. Nucleus of an atom contains the mass of the atom. _____
4. All the atoms of hydrogen have same atomic number and same mass number. _____
5. Loss of electrons by an atom gives rise to positively charged ion. _____
6. Combining capacity of aluminium is 3. _____

[E] Define the following terms: [62]

1. Atom: _____
2. Molecule: _____
3. Atomic number: _____
4. Mass number of an atom: _____
5. Isotope: _____

[F] Answer the following questions: [62]

1. Write the fundamental particles of an atom. Describe each particle in one line.

Ans. _____

2. What is atomic number? Write the atomic number of first five elements of the periodic table. Also name the elements.

Ans.

3. What is atomic mass?

Ans.

4. The atom of an element is made up of 4 protons, 5 neutrons and 4 electrons. Write down its atomic number and its mass number.

Ans.

5. Draw the diagrams representing the atomic structure of the following:

(a) Sodium atom (Atomic number 11; Mass No. 23)

(b) Chlorine atom (Atomic number 17; Mass No. 35)

(c) Carbon atom (Atomic number 6; Mass No. 12)

6. What do you understand by isotopes? Give one example.

Ans. _____

_____

_____

_____

_____

7. It is possible to write down the electronic configuration of an atom if we know its atomic number. Why this is so?

Ans. _____

_____

_____

_____

_____

_____

_____

_____

8. What would be the electronic configuration of a positively charged sodium ion, Na^+? What would be its atomic number and mass number?

Ans. _____

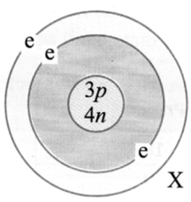
_____

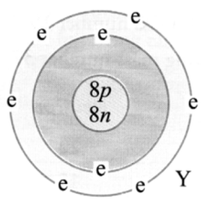
_____

9. Which of the two would be chemically reactive, element X of atomic number 18 or element Z of atomic number 16? Explain you answer.

Ans.

10. The electronic configuration of two elements X and Y are given below:





where p = proton, n = neutron, e = electron. When these two elements combine together to form a compound, give the mass (in grams) of one mole of this compound.