

# 2<sup>nd</sup> Term Worksheet [2018 – 19]

Subject – Chemistry

Class – VII

Name :

Sec. :

## Chapter – 4 [Atomic Structure]

Check Point:

[62]

[A] Answer the following questions:

1. What do you understand by the term 'atom'?

Ans. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

2. Explain the term 'molecule'. Give examples.

Ans. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3. Why atoms are called building blocks of matter?

Ans. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

4. What are radicals? Give a suitable example.

Ans. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

5. Name the three fundamental particles of an atom.

\_\_\_\_\_  
\_\_\_\_\_

[B] Fill in the blanks:

[62]

1. The charge on a proton is \_\_\_\_\_.
2. An electron has \_\_\_\_\_ charge.
3. Protons and neutrons have a mass of \_\_\_\_\_ each.
4. The mass of an electron is considered to be \_\_\_\_\_.
5. Electrons revolve in the \_\_\_\_\_ around the nucleus.
6. \_\_\_\_\_ and \_\_\_\_\_ are the particles present in the nucleus of the atom.

[C]

Answer the following questions:

[65]

1. What is atomicity?

Ans. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

2. What is valency? Give valency of any three elements.

Ans. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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3. What is periodic table?

Ans. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

4. Who invented the periodic table?

Ans- \_\_\_\_\_

\_\_\_\_\_

5. Write the atomicity of the following elements –  
Hydrogen, Helium, Chlorine, Oxygen, Nitrogen

Ans- \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Keywords:

[67]

Atomicity: \_\_\_\_\_

Molecules of Compounds: \_\_\_\_\_

Molecules of elements: \_\_\_\_\_

Orbit: \_\_\_\_\_

\_\_\_\_\_

Periodic table: \_\_\_\_\_

Periods: \_\_\_\_\_

Radical: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Valency: \_\_\_\_\_

\_\_\_\_\_

Valence electrons: \_\_\_\_\_

Valence shell: \_\_\_\_\_

**Exercise:** [68-69]

**[A] Multiple Choice Questions:** [21]

- (i) Which of the following neutral and cannot exist independently?
 

(a) molecule	(b) atom
(c) polyatomic molecule	(d) polyatomic ion
- (ii) Which of the following is not a non-metal?
 

(a) oxygen	(b) nitrogen
(c) tin	(d) sulphur
- (iii) Which of the following is diatomic molecule?
 

(a) H	(b) N <sub>2</sub>
(c) O <sub>3</sub>	(d) P <sub>4</sub>
- (iv) Which of the following is the composition of ammonia?
 

(a) three hydrogen; one nitrogen	(b) three nitrogen; one hydrogen
(c) two nitrogen; two hydrogen	(d) one nitrogen; two hydrogen; one oxygen
- (v) Which of the following elements have different valency?
 

(a) He	(b) Ar
(c) N	(d) Ne

**[B] Fill in the blanks:** [68]

1. An atom consists of three \_\_\_\_\_ particles.
2. The elements in the periodic table are arranged in the \_\_\_\_\_ order of their \_\_\_\_\_ numbers.
3. Potassium and calcium belongs to the \_\_\_\_\_ period.
4. The valency if a radical is the number of \_\_\_\_\_ atoms which combine with it to form a \_\_\_\_\_.
5. There are \_\_\_\_\_ periods and \_\_\_\_\_ groups in the periodic table.

**[C] Write True or False for the following statements. Rewrite the false statement.** [68]

1. Atoms are the smallest particles of an element that has independent existence.
2. Properties of an element depends upon the atoms constituting it. \_\_\_\_\_
3. A single molecule or a group of molecules that behave as a single unit is called a radical.  
\_\_\_\_\_
4. The atomicity of hydrogen is one. \_\_\_\_\_
5. The valency of chlorine is six. \_\_\_\_\_

**[D] Explain the following terms:** [68]

1. Radical : \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
2. Valence electron: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3. Atomic Number : \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
4. Valency : \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

[E] Answer the following questions: [68]

1. Write any three characteristics of Dalton's Atomic theory.

Ans- \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

2. What are fundamental particles? Describe each of them with a suitable diagram.

Ans- \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3. How can we classify molecules on the basis of atomicity? Explain with examples.

Ans- \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

4. What is valency? Explain the valency of oxygen and nitrogen with respect to hydrogen.

Ans-

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5. Write the valency and atomic number of first five elements of the periodic table.

Ans-

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6. Write differences between atoms and radicals.

Ans-

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7. Write a note on periodic table.

Ans-

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[F] Study the table given below and answer the following questions:

[69]

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IIA

IIIB

IVB

VB

VIB

VIIb

VIIIb

IXb

Xb

IIIB

IVB

VB

VIB

VIIb

VIIIb

IXb

Xb

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1. What is this table called? Who invented this table?

Ans. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

2. Name the following:

a. A metallic element: \_\_\_\_\_

b. A non-metallic element: \_\_\_\_\_

c. A noble gas: \_\_\_\_\_

3. Define atomic number of an element.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

4. What is the basis of arrangement of these elements in the table?

\_\_\_\_\_

\_\_\_\_\_

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**Check Point:****[79]**

[A] Answer the following questions:

1. Define a chemical reaction.

Ans. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

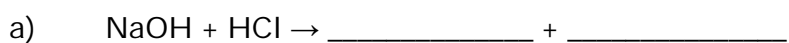
2. What are important characteristics of occurrence of a chemical reaction?

Ans. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3. What happens when solid ammonium chloride is heated?

Ans. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

4. Complete the following chemical reactions:



5. When two more reactants come in contact with one another, what happens to the transfer of energy?

Ans. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

[B] Answer the following questions:

**[81]**

1. What is a chemical equation?

Ans. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

2. What is the principle of a chemical equation?

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3. Write balanced molecular equations for the following word equations: [81]

a. Aluminium + Oxygen  $\rightarrow$  Aluminium oxide

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b. Sodium hydroxide + Sulphuric acid  $\rightarrow$  Sodium sulphate + water

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c. Manganese dioxide + Hydrochloric acid  $\rightarrow$  Manganese chloride + Chlorine + Water

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d. Potassium chlorate  $\rightarrow$  Potassium chloride + Oxygen

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e. Potassium permanganate + Hydrochloric acid  $\rightarrow$  Potassium Chloride + Manganese chloride + Chlorine + Water

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**Keywords:** [82]

Chemical formula: 

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Chemical equation: 

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Symbol: 

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**Exercise:** [83-86]

[A] Multiple Choice Questions: [83]

(i) The elements or compounds taking part in a chemical reaction are called \_\_\_\_\_.

- |              |                   |
|--------------|-------------------|
| (a) reaction | (b) resultants    |
| (c) products | (d) none of these |

(ii) The use of symbols has made the job of chemists much

- |                          |                   |
|--------------------------|-------------------|
| (a) easier               | (b) difficult     |
| (c) easier and difficult | (d) none of these |

(iii) The symbols and formulae have also make writing of chemical equations very

- |                |                                     |
|----------------|-------------------------------------|
| (a) convenient | (b) inconvenient                    |
| (c) difficult  | (d) both difficult and inconvenient |

(iv) By heating solid ammonium chloride the gas evolved is

- |  |                       |
|--|-----------------------|
| (a) ammonia                            | (b) hydrogen chloride |
| (c) both ammonia and hydrogen chloride | (d) oxygen            |

(v) When hydrochloric acid (HCl) reacts with sodium hydroxide solution (NaOH), the

- |                       |                                      |
|-----------------------|--------------------------------------|
| (a) heat is evolved   | (b) light is produced                |
| (c) sound is produced | (d) both heat and light are produced |



- (vi) A chemical equation has the following essential characteristic
- it should represent an actual chemical change
  - it should be balanced
  - it should be molecular
  - all of these
- (vii) A chemical reaction takes place when
- two substance react together to form a new compound
  - a compound breaks down into simple substances
  - both of these
  - none of these

[B] Fill in the blanks: [83]

- A chemical reaction take place when two or more reactants come in contact with \_\_\_\_\_ and transfer of \_\_\_\_\_ takes place.
- By adding dilute HCl to solid sodium carbonate taken in a test tube, a chemical reaction takes place with the evolution of \_\_\_\_\_ gas.
- The transition of a solid chemical compound directly into gases on heating without entering into the liquid state is called \_\_\_\_\_.
- When a potassium iodide solution is added to lead acetate solution, a yellow coloured precipitate of \_\_\_\_\_ is obtained.
- In a chemical equation, an \_\_\_\_\_ sign is made between the reactants and the products side.

[C] Write T for true and F for false statements. Rewrite the false statements correctly: [84]

- In writing a chemical equation left hand side represents reactants and substances taking part in a chemical reaction. \_\_\_\_\_
- In a chemical reaction arrow ( $\rightarrow$ ) indicates the direction in which the reaction proceeds. Reactants are followed by an arrow sign. \_\_\_\_\_
- Double arrow ( $\rightleftharpoons$ ) heads in opposite directions, facing the products on well as the reactions implies that products formed can recombine to form the reactions. \_\_\_\_\_
- It is not necessary to balanced a chemical equation. \_\_\_\_\_
- In a balanced equation, the number of atom or atoms of an element on the reactant side as well as the product side are not equal. \_\_\_\_\_
- When chemicals react, or when a chemical substance breakup, new substances are formed. \_\_\_\_\_
- The changes shown with the help of symbols and formulae represents a chemical equation. \_\_\_\_\_
- The heating of solid ammonium chloride is an example of reversible reaction. \_\_\_\_\_

[D] Complete these chemical equations: [84]

- $2 \text{Mg} + \text{O}_2 \rightarrow$  \_\_\_\_\_
- $\text{CaCO}_3 +$  \_\_\_\_\_  $\rightarrow \text{CaCl}_2 + \text{CO}_2 + \text{H}_2\text{O}$
- $\text{Ca}(\text{OH})_2 + \text{CO}_2 \rightarrow \text{CaCO}_3 +$  \_\_\_\_\_
- $\text{CO}_2 + \text{C} \rightarrow$  \_\_\_\_\_
- $2 \text{Pb}(\text{NO}_3)_2 \rightarrow 2\text{PbO} +$  \_\_\_\_\_  $+ \text{O}_2$

[E] Write balanced molecule equations for the following word equations: [84]

- Zinc + Sulphuric acid  $\rightarrow$  Zinc sulphate + Hydrogen
-

2. Iron + Steam  $\rightarrow$  Iron oxide + Hydrogen

\_\_\_\_\_

3. Nitrogen + Oxygen  $\rightarrow$  Nitrogen dioxide

\_\_\_\_\_

4. Carbon + Nitric acid  $\rightarrow$  Carbon dioxide + Nitrogen dioxide + Water

\_\_\_\_\_

5. Ammonium nitrate  $\rightarrow$  Nitrous oxide + Water

\_\_\_\_\_

6. Zinc sulphide + Oxygen  $\rightarrow$  Zinc oxide + Sulphur dioxide

\_\_\_\_\_

7. Nitrogen + Hydrogen  $\rightarrow$  Ammonia

\_\_\_\_\_

8. Aluminium + Oxygen  $\rightarrow$  Aluminium oxide

\_\_\_\_\_

9. Carbon dioxide + Carbon  $\rightarrow$  Carbon monoxide

\_\_\_\_\_

10. Sodium + Water  $\rightarrow$  Sodium hydroxide + Hydrogen

\_\_\_\_\_

[F] Answer the following questions: [85]

1. Define the following terms:

a. Chemical reactions: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

b. Chemical equation: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

c. Reactants: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

d. Products: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

2. Write the principle of a balanced chemical equation.

Ans- \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

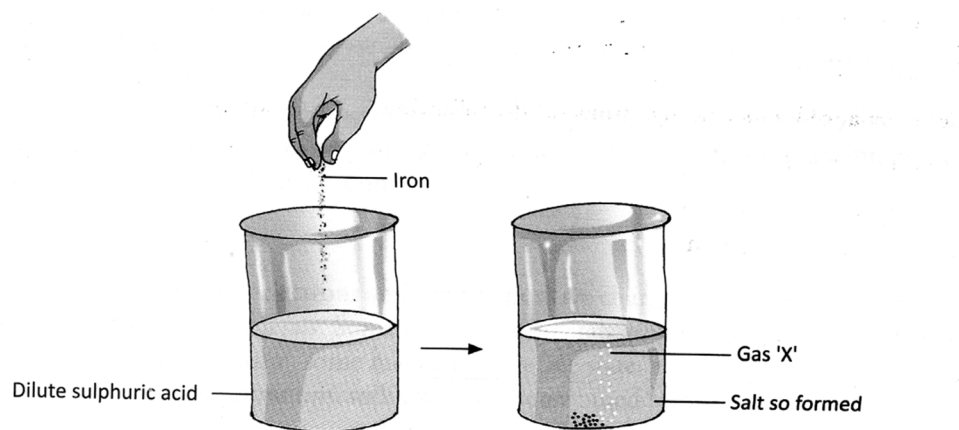
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\_\_\_\_\_

\_\_\_\_\_

[illegible][illegible]

[85-86]



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