



IMPORTANT QUESTIONS FOR SECTION B

IX CHEMISTRY

1. What is the modern periodic law. Name the elements of the Lithium family

In 1914, Moseley, a British physicist arranged the elements in order of their increasing atomic numbers. In this periodic table, elements having similar properties are repeated at regular intervals. *“The physical and chemical properties of all elements are the periodic functions of their atomic numbers”*. This is called modern periodic law. In modern periodic table, the vertical columns of elements are called groups and horizontal rows of elements are called periods.

Lithium family includes Li, Na, K, Rb, Cs and Fr.

2. What is diffusion? State Graham’s law of diffusion of gases

DIFFUSION:

“The spreading of the molecules of the substance through medium is called diffusion.”

OR

“The intermixing of substances to form a homogenous solution is called diffusion.”

DIFFUSION OF GASES:

When a sample of a gas is set free in container, its molecules very quickly spread throughout the container.

For example, molecule of perfume spread throughout the room.

GRAHAM’S LAW OF DIFFUSION:

A Scottish chemist, Thomas Graham studied the rate of diffusion of different gases and formulated a law.

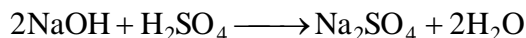
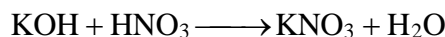
STATEMENT

“The rate of diffusion of a gas is inversely proportional to the square root of the density of the gas.”

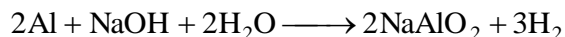
3. Write down any three chemical properties of BASE.

Chemical Properties of Bases:

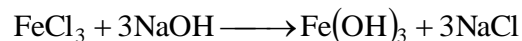
1. They react with acids to form salt and water.



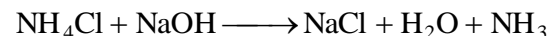
2. Bases dissolve certain metals and non-metals and liberate hydrogen gas.



3. Bases precipitate out heavy metal ions from their salt solutions.



4. Bases react with ammonium salts to form salt, water and ammonia gas.





4. Find out Protons and Neutrons present in the following atoms ${}^7\text{N}$, ${}^{15}\text{N}$, ${}^{17}\text{Cl}$, ${}^{37}\text{Cl}$, ${}^{92}\text{U}$, ${}^{235}\text{U}$

Nitrogen: 7 Protons

8 Neutrons

Chlorine: 17 Protons

20 Protons

Uranium: 92 Protons

143 Neutrons

5. What are Transition Elements? Describe any two general characteristics of these elements.

These are metals. In these elements, besides the valence shell or penultimate shell is also incomplete. In chemical reactions they show more than one valencies.

i. Outer transition elements. ii. Inner transition elements.

Inner transition elements are further divided into two series called:

i. Lanthanide series. ii. Actinides series

6. Calculate the molarity of a solution containing 4 grams of Sodium Hydroxide (NaOH) in 100 ml solution.

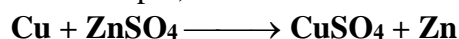
ANSWER: 1 MOLAR

7. Define both kinds of Displacement reaction with an appropriate chemical equation as an example for each

DISPLACEMENT REACTION:

The process in which single element or a radical in a compound is displaced by another element or a radical is known as displacement reaction.

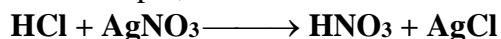
For Example;



DOUBLE DISPLACEMENT REACTION:

Two compounds exchange their radicals, so that two new compounds are formed. The process in which both the elements or a radical in a compound is displaced by each other or exchanging their radicals.

For Example;

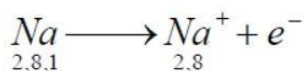


8. Define Ionic bond. Describe the mechanism of formation of NaCl.

ELECTROVALENT BOND OR IONIC BOND:

A German chemist W. Kossel introduced the idea of ionic bond in 1916. He stated as: *"The bond which is formed by the complete transfer of electrons from one atom to another is called electrovalent bond."*

FORMATION OF NaCl: In the formation of NaCl, an atom of sodium (Na) transfers one electron from its valence shell and becomes positive sodium ion (Na^+) and an atom of chlorine gains that one electron to complete its octet and becomes chloride negative ion (Cl^-).



The attraction that binds (Na⁺) and (Cl⁻) ions together is called electrovalent bond and the compound (NaCl) is called electrovalent compound or ionic compound.

9. Define chemistry. Name few branches of chemistry

CHEMISTRY:

A branch of science that deals with the composition, structure and properties of matter, and chemical changes involve in it.

BRANCHES OF CHEMISTRY:

The main branches of chemistry are:

- 1) Physical chemistry
- 2) Organic chemistry
- 3) Inorganic chemistry
- 4) Analytical chemistry
- 5) Bio chemistry
- 6) Industrial chemistry
- 7) Nuclear chemistry
- 8) Environmental chemistry
- 9) Polymeric chemistry

10. Calculate the molecular mass (in a.m.u) of each of the following substances.

- H₂O
- C₂H₆
- H₂O₂
- C₂H₆O

ANSWER:

.18

.30

.34

.46



11. The formula for rust is Fe_2O_3 . How many moles of Fe are present in 30g of rust?

ANSWER: 0.18

12. Calculate the molarity of a solution containing 16g glucose per 300ml solution

ANSWER: 0.296M

13. What is meant by Mole? Calculate the number of moles in 96g of SO_2 .

The **mole** is the unit of measurement for amount of substance in the International System of Units (SI). It is defined as exactly $6.02214076 \times 10^{23}$ particles, which may be atoms, molecules, ions, or electrons.

1.5

14. Define isotope? Give any three examples of isotopes

15. Define chemistry? Give any three examples of chemistry

16. Differentiate between 1) metal and non metal 2) Sodium and iron

17. Explain corrosion?

18. Differentiate between 1) Polar and Non Polar compounds 2) Intermolecular and Intra-molecular forces