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 arrangedthe 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 lawin modern periodic table, the vertical columnsof 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 ofgases

DIFFUSION:

"The spreading of the molecules of the substance through medium is calleddiffusion."
OR
"The intermixing of substances to form ahomogenous solution is called diffusion."

DIFFUSION OF GASES:
When a sample of a gas is set free in container, its molecules very quickly spreadthrough out the container.
For example, molecule of perfume spreadthroughout the room.

GRAHAM'S LAW OF DIFFUSION:
A Scottish chemist, Thomas Graham studiedthe 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 densitythe gas."

3. Write down any three chemicalproperties of BASE.

Chemical Properties of Bases:

1. They react with acids to form salt andwater.

$$KOH + HNO_3 \longrightarrow KNO_3 + H_2O$$

$$2NaOH + H_2SO_4 \longrightarrow Na_2SO_4 + 2H_2O$$

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

$$2Al + NaOH + 2H_2O \longrightarrow 2NaAlO_2 + 3H_2$$

3. Bases precipitate out heavy metal ionsfrom their salt solutions.

$$FeCl_3 + 3NaOH \longrightarrow Fe(OH)_3 + 3NaCl$$

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

$$NH_4Cl + NaOH \longrightarrow NaCl + H_2O + NH_3$$

4.Find out Protons and Neutronspresent in the following atoms7N 15 17Cl37 92U 235

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, besidesthe valence shell or penultimate shell is also incomplete. In chemical reactions they showmore than one valencies.

i.Outer transition elementsi.Inner transition elements.

Inner transition elements are further dividedinto two series called:

i.Lanthanide seriesi.Actinides series

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

100 ml solution.

ANSWER: 1 MOLAR

7. Define both kinds of Displacement reaction with an appropriate chemical equation asexample 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;

$Cu + ZnSO_4 \longrightarrow CuSO_4 + Zn$

DOUBLE DISPLACEMENTREACTION:

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

For Example;

$HCl + AgNO_3 \longrightarrow HNO_3 + AgCl$

8. Define Ionic bond. Describe themechanism 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: *"Thebond 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 become positive sodium ion (Na^+) and an atom of chlorine gains that one electron to complete its octet and becomes chloride negative ion (Cl^-).

$$\underset{2,8,1}{Na} \longrightarrow \underset{2,8}{Na^+} + e^-$$

$$\underset{2,8,7}{Cl} + e^- \longrightarrow \underset{2,8,8}{Cl^-}$$

$$Na^+ + Cl^- \longrightarrow Na^+Cl^-$$

The attraction that binds (Na_+) and (Cl_-) ions together is called electrovalent bond and thecompound (NaCl) is called electrovalent
compound or ionic compound.

9. Define chemistry. Name fewbranches 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 (ina.m.u) of each of the following substances.

- H20
- C2H6
- H2O2
- C2H60

ANSWER:

.18

.30

.34

.46

11. The formula for rust is Fe203.How many moles of Fe are present in 30g of rust?.

ANSWER: 0.18

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

ANSWER: **0.296M**

13. What is meant by Mole? Calculate the number of moles in96g of SO2.
The **mole** is the unit of measurement foramount of substance in the InternationalSystem of Units (SI). It is defined as exactly 6.02214076×10^{23} particles, whichmay 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. Differenciate between 1) metal and non metal 2) Sodium and iron
17. Explain corrosion?
18. Differenciate between 1) Polar and Non Polar compounds 2) Intermolecular and Intra-molecular forces