**2nd sec. 1st term mid chemistry revision**

 **[1] Write the scientific term:**

1. An amount of energy released when an extra electron is added to a neutral gaseous atom. […………………..………….]
2. The electron is a material particle which also have wave properties.[……………………]
3. A quantum number represents the number or orbitals in a certain energy level.

 […………………..……….]

1. The amount of energy needed to remove an electron from M+ ion to M++ ion.

[…………………………….]

1. A stream of invisible rays that affect the wall of electric discharge tube.

[……………………………]

1. Ionic compounds in which hydrogen has oxidation number (-1)[…….……………………]
2. Bond formed between two atoms the difference in electronegativity is zero.

 […………………………..]

1. A group of elements whose valence shell has more than half of its capacity of electrons.

 […………………………..]

1. The type of bonds formed between two atoms the difference in electronegativity between them is zero. […………………………..]

10. No electron pairing takes place in a given sublevel until each orbital contains one electron. […………………………..]

11. An ion formed when hydrogen ion links with water molecule.[…………………………….]

12. A process takes place in the same atom by overlapping atomic orbitals of different energy and shape to produce hybridized orbitals have the same energy and shape.

 […………………………….]

13. A bond formed when the electron cloud of valence electrons are associated together around the positive metal ions. […………………………….]

14. The tendency of an atom to attract electron of covalent bond. […………………………….]

15. Colored light produced on heating gases or vapours under low pressure[………………...]

16. Molecule is a big atom of multi nuclei. […………………………….]

17. A group of elements in which 4f sublevel is filled successively with electrons.

 […………………………….]

18. Half the distance between the centers of two similar atoms in a diatomic molecule.

 […………………………..]

19. The bond which produced from overlapping of atomic orbitals side by side.

 [……………………………]

20. The amount of energy absorbed or emitted when an electron jumps from one energy level to another. […………………………….]

21. The method used to prepare washing soda in industry. […………………………….]

**[2] Choose:**

1. The maximum number of electrons in each orbitals of 3p sublevel are ………………….

a. 2 b. 4 c. 6 d. 10

2. Period six in the periodic table contains ……………….. types of elements.

 a. six b. three c. four d. five

 3. Two electrons of 3s sublevel are different in …………….. quantum number.

 a. magnetic b. principal c. subsidiary d. spin

4. The study of atomic spectra of hydrogen is considered a key which helps Bohr to discover …………………….

a. the electrons are negatively charged b. the atom has a central nucleus

c. the energy level in the same atom d. all the previous

 5. The element with outer electron configuration 6s2, 5d1, 4f3 is a ……………….. element

 a. main transition b. lanthanide c. actinide d. representative

6. The quantum energy needed to transfer the electron from second energy level to the third energy level ……………….. the quantum number of energy needed to transfer the electron from the third energy level to the fourth energy level.

 a. more than b. less than c. equals

7. The orbitals of the same energy sublevel are …………………..

 a. different in energy b. equal in energy

 c. different in shape d. (a) & (b)

8. The elements that have metallic properties are located in which corner of the table……..

 a. upper right b. upper left

 c. lower right d, lower left

9. The maximum number of electrons that occupy a given energy level (n) equals ………….

a. 2n b. n2 c. 2n2 d. (2n)2

10. The type of hybridization of carbon atom in acetylene molecule is ……………….

a. sp3 b. sp2 c. sp d. sd

11. The number of orbitals of 4p sublevel is ……………………………

 a. 3 b. 5 c. 7 d. 10

12. Aluminium chloride has a covalent bond characters as the difference in electronegativity is ………………………..

 a. more than 1.7 b. less than 1.7 c. equal 1.7 d. none of them

13. Hydrogen bonds exist between molecules of ……………………

a. H2S b. NH3 c. CH4

14. Three elements 9X, 10Y, 12Z, the ………………… can form pure covalent bond when they joined together.

a. X&Z b. X&X c. Z&Z d. Y&Y

15. In vapour state phosphorus molecule contains ……………….. atoms.

a.1 b.2 c.3 d.4

16. ………………. Quantum number is the number that describes the number of sublevels in each principle level.

a.Principal b. Subsidiary c. Magnetic d. Spin

17. Calcium cyanamide reacts with water and …………………. Gas is evolved

a. NO2 b. NO c. H2 d. NH3

18. The type of an element which has atomic number (42) is ……………………………

a. nobel gas b. main transition c. inner transition d. representative

20. When two atoms of atomic number (9) combine together, the formed bond is …………

a. polar covalent b. ionic c. coordinate d. pure covalent

21. The number of orbitals in the principal energy level (n) equals ……………….

a. 2n2 b. 3n2 c. n2 d. (n-1)

22. The solution of ………………. Doesn’t conduct electricity.

a. NaCl b. MgCl2 c. AlCl3 d. HCl

23. When calcium cyanamide reacts with water the evolved gas is …………………..

a. ammonia b. hydrogen c. nitric oxide d. nitrogen dioxide

24. period six in the periodic table contains …………….. types of elements.

a. six b. three c. four d. five

25. Hydronium ion H3O+ contains …………………… bond.

a. hydrogen b. pure covalent c. coordinate d. all the previous

26. Hybridization in a molecule ethane …………………….

a. sp3 b. sp c. sp2 d. all the previous

27. in the second transition series, sublevel ……………. Is filled sequentially.

a. 3d b. 4d c. 4f d. 5f

28. Oxidation number of oxygen in superoxide ……………….

a. -2 b. +2 c. -1/2 d. -1

**[3] The bond length in the chlorine molecule Cl2 is 1.96 Ǻ and the bond length between carbon and chlorine is 1.76 Ǻ .**

**Calculate the atomic radius of carbon.**

………………………………………………………………………………………………………………………………………………………………………………………………………………………………

**[4] Calculate the bond length between (N – O) providing that the bond length in ammonia molecule is 1 Ǻ and in water molecule is 0.96 Ǻ and that for hydrogen molecule is 0.6 Ǻ**

………………………………………………………………………………………………………………………………………………………………………………………………………………………………

**[5] Calculate the atomic radius of hydrogen atom, if you know that the bond length on chlorine molecule is 1.89 Ǻ and the bond length between hydrogen & chlorine atoms equals 1.29 Ǻ.**

**………………………………………………………………………………………………………………………………………………………………………………………………………………………………**

**[6] If the bond length of NaCl is 2.4 Ǻ and bond length of chlorine Cl2 is 1.8 Ǻ . find bond length of NaBr given that length of bromine Br2 is 2.24 Ǻ.**

**………………………………………………………………………………………………………………………………………………………………………………………………………………………………**

**[7] If the bond length in H2=0.6 Ǻ and in N2=1.46 Ǻ, find the bond length in ammonia.**

**………………………………………………………………………………………………………………………………………………………………………………………………………………………………**

**[8] Calculate the oxidation and reduction that occurred to chromium and sulphur in the reaction:**

Cr2O72- + H2S Cr3+ + S + H2O

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

**[9] Show the oxidation and reduction that occurred to nitrogen and manganese in the following reaction:**

5KNO2 + 2KMnO4 + 3H2SO4 5KMnO3 + K2SO4 + 2MnSO4 + 3H2O

……………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

**[10] Mention the oxidation reduction process in the following reaction :**

Fe2O3 + 3CO 2Fe + 3CO2

……………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………….

**[11] Explain oxidation and reduction of the element carbon, iron and hydrogen in :**

2Fe2O3 + 3CO + 3H3 2Fe + 3CO2 + 3H2O

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

**[12] By using oxidation number show the oxidation and reduction for phosphorus and chlorine.**

2P + 5HClO + 3H2O 2H3PO4 + 5HCl

……………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………….

**[13] Explain the type of change (oxidation or reduction) that takes place to lead (Pb) in the following half reaction: PbO2 PbCl2**

…………………………………………………………………………………………………………………………………………………………………………………………………………………………

**[14] Show the chemical change (oxidation & reduction), then find the oxidizing agent and the reducing agents (chromium-sulphur) in :**

**Cr2O7 - - + 3H2S + 8 H+ 2Cr+3 + 3S + 7H2O**

…………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

**[15] Calculate the oxidation number of the mentioned elements in the following compounds:**

1. manganese in : KMnO4

………………………………………………………………………………………………………………………………………………………………………………………………………………………….

2. Oxygen in : Na2O2

…………………………………………………………………………………………………………………………………………………………………………………………………………………………

3. Nitrogen in : NH3

…………………………………………………………………………………………………………………………………………………………………………………………………………………………

4. Chlorine in : NaClO3

………………………………………………………………………………………………………………………………………………………………………………………………………………………….

**[16] Give reason for:**

1. The first ionization energy of Nobel gases is very high.

………………………………………………………………………………………………………………………………………………………………………………………………………………………….

2. Second ionization energy is very high for alkali metals.

………………………………………………………………………………………………………………………………………………………………………………………………………………………..

3. It is wrong to consider that the electron is a negatively charged particle only.

…………………………………………………………………………………………………………………………………………………………………………………………………………………………

4. The negative fluoride ion and the positive sodium ion have the same electron configuration.

………………………………………………………………………………………………………………………………………………………………………………………………………………………….

5. It is preferred to the electron to be alone in its sublevel than to be paired.

………………………………………………………………………………………………………………………………………………………………………………………………………………………….

6. Zinc sulphide is used to detect the invisible alpha particles.

Or; In Rutherford experiment the metallic sheet is covered from inside with a layer of zinc sulphide.

…………………………………………………………………………………………………………………………………………………………………………………………………………………………

7. Elements of group 5A have low values of electron affinities.

…………………………………………………………………………………………………………………………………………………………………………………………………………………………

8.ClO3(OH) acid is stronger than PO(OH)3 acid.

…………………………………………………………………………………………………………………………………………………………………………………………………………………………

9. Absence of positive hydrogen ion in the acid solution.

………………………………………………………………………………………………………………………………………………………………………………………………………………………….

1. The use of cesium in photo-electric cells.

………………………………………………………………………………………………………………………………………………………………………………………………………………………….

1. Water is not used to extinguish sodium fires.

………………………………………………………………………………………………………………………………………………………………………………………………………………………….

1. Elements of group 3A are hard while elements of group 1A are soft.

…………………………………………………………………………………………………………………………………………………………………………………………………………………………

1. 13Al is more harder than 11Na.

………………………………………………………………………………………………………………………………………………………………………………………………………………………………14.In Rutherford’s experiment, some of α-particles did not penetrate the gold foil and reflected back.

………………………………………………………………………………………………………………………………………………………………………………………………………………………………15.The angle between bonds of molecule depends on the lone pair of electrons not on the bond pair.

………………………………………………………………………………………………………………………………………………………………………………………………………………………………16.The value of angle between the bonds of water molecule smaller than of ammonia molecule.

…………………………………………………………………………………………………………………………………………………………………………………………………………………………17.Zinc oxide is an amphoteric oxide with equation.

………………………………………………………………………………………………………………………………………………………………………………………………………………………………18.Sublevels 4s is filled with electron s before sublevel 3d.

……………………………………………………………………………………………………………………………………………………………………………………………………………………………...

19. Cesium is used in photo-electric cells.

………………………………………………………………………………………………………………………………………………………………………………………………………………………….

20. The line spectra of each element is specific.

………………………………………………………………………………………………………………………………………………………………………………………………………………………….

21. Although copper is below hydrogen in the electrochemical series but it reacts with nitric acid.

…………………………………………………………………………………………………………………………………………………………………………………………………………………………

22. Electrolysis is the only method to prepare elements of the first group 1A from its salt molten.

…………………………………………………………………………………………………………………………………………………………………………………………………………………………

23. Weakness of metallic bond between atoms of elements in the first group.

…………………………………………………………………………………………………………………………………………………………………………………………………………………………

**[17] Write the name of the scientist for each of the following:**

1. He stated that no electron pairing takes place in a given sublevel until each orbital contains one electron. [………………………………..]

2. He introduced the idea of quantized energy state for electron in the atom.

 [………………………………..]

3.He considered the atom as a sphere of positive electricity contains number of electrons make it neutral. [………………………………..]

4. He gave the first definition of the element. [………………………………..]

5. He stated the uncertainty principle. [………………………………..]

**[18] Write the electronic structure and determine the type of block for each element:**

1.29Cu:……………………………………………………………………………………………………………………………………………………………………………………………………………………

2.38Sr:………………………………………………………………………………………………………………………………………………………………………………………………………………………

3.23V:………………………………………………………………………………………………………………………………………………………………………………………………………………………

4.18Ar:……………………………………………………………………………………………………………………………………………………………………………………………………………………

5. 20Ca:…………………………………………………………………………………………………..

6. 35Br:…………………………………………………………………………………………………..

**[19] Write the electronic configuration of 26Fe, then mention:**

1. Its type: ………………………………………………………………………………………………..

2. Number of half filled orbitals: ……………………………………………………………………...

**[20] Find the atomic no. of an element in which the quantum numbers of the last electron in its atom are : [n=3, l=0, ml=0, ms=+1/2]**

Then write the electron configuration

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

**[21] Write the probability of four quantum numbers of the last electron for the following elements:**

(1) Boron (5B) (2) Sodium (11Na)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| element | Electronic configuration | n | l | ml | ms |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

**[22] What is meant by:**

1. Acidic oxides:

………………………………………………………………………………………………………………………………………………………………………………………………………………………………

2. The exited atom:

………………………………………………………………………………………………………………………………………………………………………………………………………………………………

3. Hydrogen bond:

………………………………………………………………………………………………………………………………………………………………………………………………………………………………

4. Quantum:

………………………………………………………………………………………………………………………………………………………………………………………………………………………………

5. Coordinate bond:

………………………………………………………………………………………………………………………………………………………………………………………………………………………………

6. Oxidation number:

……………………………………………………………………………………………………………………………………………………………………………………………………………………………...

7. Line spectrum:

………………………………………………………………………………………………………………………………………………………………………………………………………………………………

**[23] Compare between:**

**1. 1st ionization energy & 2nd ionization energy**

|  |  |
| --- | --- |
| 1st ionization energy | 2nd ionization energy |
| …………………………………………………….…………………………………………………….…………………………………………………….…………………………………………………….…………………………………………………… | ……………………………………………………………………………………………………………………………………………………………….…………………………………………………….……………………………………………………. |

**2. Principal quantum number & subsidiary quantum number**

|  |  |
| --- | --- |
|  |  |
| **…………………………………………………****…………………………………………………****………………………………………………….****…………………………………………………** | **……………………………………………………****…………………………………………………….****………………………………………………………****…………………………………………………….** |

**3. BF3 & H2O (Stereo structure and number of lone pair & bond pair of electrons)**

|  |  |  |
| --- | --- | --- |
| P.O.C | BF3 | H2O |
| Stereo structure | …………………………….. | …………………………. |
| No. of lone pair and bond pair of electrons | …………………………………... | ………………………………….. |

**4. Sigma & pi bonds (formation & strength)**

|  |  |
| --- | --- |
|  |  |
|  |  |
|  |  |

**5. lanthanides & actinides:**

|  |  |
| --- | --- |
|  |  |
|  |  |
|  |  |
|  |  |

**[24] Correct underlined words:**

1. The oxidation number of the first group elements in their compounds is +2. [……………]

2. Two electrons of the same orbital differ in the magnetic quantum number.[…….………..]

3. Nonmetals are characterized by large atomic radius [……………………………….………..]

4. The uncertainty principle was found by Schrodinger.[………………………………………..]

5. In the same period , the atom with highest electron affinity is that for Nobel gas[………]

6. Nobel elements are the s and p block element except of zero group.[……………………….]

7. The strength of oxygenated acid represented by the formula MOn(OH)m where the strong acid is that which has more number of H-bonded with M [……………………………..]

8. In methane molecule (CH4), the angles between orbitals are 900 [………………………….]

9. The magnetic quantum number defines the number of energy levels [………………….…]

1. The number of hybridized orbitals in ethylene molecule is four. […………………………]

11.The bond in sodium chloride is polar covalent. […….……………………………………….]

12.Ionic bond is much weaker and longer than covalent bond.[……………………………….]

13.Sodium carbonate is prepared by passing of carbon dioxide gas through hot solution of sodium chloride. [……………………………]

14. The bond between atoms of copper is covalent and the hydrogen bond is formed between atoms of water. […………………………….]

15. Ammonium sulphate fertilizer provides the soil with two essential elements which are nitrogen and sulphur. […………………………….]

16. On preparing nitrogen , the air is passed over caustic soda to remove oxygen.

 […………………………….]

17. s, p, d & f are symbols of the principal energy levels. [……………………………]

18. Nonmetals are characterized by large atomic radius. […………………………….]

19. When two atoms of an element of atomic number (9) combine together to form a molecule, the formed bond is coordinate. [……………………………]

**[25] Write about :**

1. The electron distribution for 17Cl , then apply Hund’s rule for the last sublevel with drawing it and determine the four quantum numbers for the last electron enter the sublevel.

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

2. Heisenberg uncertainty principle.

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

3. The electron cloud.

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

4. Octet rule and its inadequacies:

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

5. The properties of cathode ray.

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

6. The use of potassium super oxide.

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

7. The dual nature of electron.

………………………………………………………………………………………………………………………………………………………………………………………………………………………………

8. Valence bond theory.

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

1. Allotropy.

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

10 . Type of bonds in ammonium chloride.

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

11.Passivity:

………………………………………………………………………………………………………………………………………………………………………………………………………………………………

**[26 ] Show by a balanced chemical equation :**

1. Haber Bosh method

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

1. Solvay process

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

1. The effect of heat on potassium nitrate salt.

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

1. The role of potassium superoxide in purification of air in closed places.

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

1. The effect of heat on a mixture of ammonium chloride and slaked lime.

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

1. The effect of heat on sodium with nitrogen at 3000C.

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

**[27] Draw the apparatus used for preparation of:-**

**1. nitrogen in laboratory and write down the equation of the reaction.**

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

2. nitric acid in the laboratory and write the equation of its preparation.

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

3. Nitrogen gas in lab. From sodium nitrite then write the chemical equation.

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

 **[28] Which is greater and why?**

1. The boiling point of water or that of hydrogen sulphide.

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

1. The atomic radius of 3Li or 9F

……………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………...

**[29] What happens when:**

1. An electron absorbs a quantum of energy.

………………………………………………………………………………………………………………………………………………………………………………………………………………………………

1. A glass rod wetted with concentrated hydrochloric acid is exposed to ammonia gas.

………………………………………………………………………………………………………………………………………………………………………………………………………………………………

1. We add calcium cyanamide to irrigated soil.

………………………………………………………………………………………………………………………………………………………………………………………………………………………………

**[30] Arrange the following in a descending order according to their acidity:**

1. HBr 2. HF 3. HI 4. HCl

……………………………………………………………………………………………………………..

**[31] Which type of bonds in each of the following :**

1. Chlorine molecule : ……………………………………………………………………………
2. Hydrogen sulphide molecule : ……………………………………………………………….
3. Potassium chloride:…………………………………………………………………………….
4. Copper rod:………………………………………………………………………………………
5. Between water molecules:…………………………………………………………………….
6. Hydrogen molecule:……………………………………………………………………………

**[32] Show by chemical equation only:**

1. How to obtain calcium cyanamide from sodium nitrite.

………………………………………………………………………………………………………………………………………………………………………………………………………………………………

1. The effect of heat on Nitric acid.

………………………………………………………………………………………………………………

1. The effect of heat on sodium bicarbonate.

………………………………………………………………………………………………………………

1. Reaction of zinc oxide with sodium hydroxide.

…………………………………………………………………………………………………………

1. Purification of submarine from carbon dioxide

………………………………………………………………………………………………………….

1. Ammonia from lithium

…………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

1. Hydrogen peroxide from sodium peroxide.

…………………………………………………………………………………………………………………………………………………………………………………………………………………….

1. Reaction of peroxide & superoxide with acids.

…………………………………………………………………………………………………………………………………………………………………………………………………………………….

1. Preparation of ammonia gas in industry. (Haber-Bosh method)

…………………………………………………………………………………………………………………………………………………………………………………………………………………….

**[33] Write the chemical formula for each of the following:**

1. Carnallite: ……………………………………………………………………………………….
2. Arsine : ……………………………………………………………………………………………
3. Apatite:…………………………………………………………………………………………..
4. An ion formed when acids dissolve in water:………………………………………………..
5. An acid produced when sulphur trioxide dissolve in water:……………………………..

**[34] Explain using Lewis diagram bonding in :**

(1) Sodium [11Na] with chlorine [17Cl] to form formula unit (NaCl)

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

(2) Nitrogen [7N] with hydrogen [1H] to form ammonia molecule (NH3)

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

**[35] Mention the role the scientist in Chemistry :**

(1) Boyle:………………………………………………………………………………………………….

(2) Haber- Bosh:………………………………………………………………………………………….

(3) Lewis & Kosel:………………………………………………………………………………………..

(4) Pauli:…………………………………………………………………………………………………..

**[36] Arrange the following bonds according to their polarity:**

(1) H – Cl (2) C = O (3) H – H (4) N – O (5) P – Cl

Where the electronegativity of H = 2.1, Cl = 3, C = 2.5, N= 3, O = 3.5, P = 2.1

……………………………………………………………………………………………………………………………………………………………………………………………………………………………..