

## Chemistry - 11th Class Chemistry Short Questions Chapter 6 Preparation

Q1.

Ans 1:

Q2. How the %age of ionic character of the polar bond can be determined?

Ans 1:

Q3. Most of He elements of the periodic table attain the electronic configuration of inert gases during bond formation. Justify it.

**Ans 1:** Inert gases are not reactive due to complete octet except He. Most of He s-and p-block elements may attain eight electrons in the outermost orbitals. They do so either by losing, gaining or sharing the electrons.

Q4. Why MOT is superior to VBT?

**Ans 1:** Molecular orbital theory tells us the reason for no bond between noble gases. It also tells us the number of bonds whether sigma or pi in  $N_2$  and  $O_2$ . Moreover it tells about the paramagnetic and diamagnetic nature of the substance, but V.B.T. does not given such answers.

Q5.

Why the molecule of  $BF_3$  is triangular planar?

**Ans 1:** 'B' has three electrons in the outermost orbitals. It promotes the electron from 2s orbital to one of the 2p orbitals. Boron undergoes  $sp^2$  hybridization. Three  $sp^2$ -hybridized orbitals lie in one plane and adjust themselves at angle of  $120^\circ$ . There F atom make three sigma bonds which lie in one plane. So, the molecule of  $BF_3$  is planar.

Q6. Why  $CO_2$  has linear structure?

**Ans 1:** Carbon has four electros in the outermost orbitals. It makes two sigma and two pi-bonds with two oxygen atoms. It means that it has two double bonds. Caron has no lone pair in  $CO_2$  is  $AB_2$  type molecule having the linear structure.  $O=C=O$ .

Q7. Why the lone pairs of electrons on an atom occupy greater space?

**Ans 1:** The lone of electrons of the central atom is only attracted by the nucleus of the central atom. It creates more forces of repulsion due to nearness of nucleus and occupies greater space as compared to the bond pair.

**Q8. Ionization energy of the element is the binding energy of the nucleus and the electron. Why is it measured when the atom is in the gaseous state?**

**Ans 1:** The outermost electrons are attracted by the nucleus. If the atom is closer to some other atom of its own kind or of different kinds, then the outermost electrons are being attracted or repelled by other species as well. In that situation, it is not possible to guess the forces of attractions within the nucleus and the outermost electron.

---

**Q9. Dipole moment of  $\text{CO}_2$  is zero but that of CO is 0.12 Debye. Why?**

**Ans 1:**  $\text{CO}_2$  is linear molecule and the two dipoles cancel the effect of each other. In CO there is a single dipole directed from carbon to oxygen and it not cancelled.

---

**Q10. Why positively charged ions are mostly smaller in sizes than their neutral atoms?**

**Ans 1:** By the removal of electrons the cloud of outermost orbitals becomes thin. In this way, the remaining electrons are accommodated in smaller space. The nuclei have better attractive forces for them, and so the size are decreased as compared to the neutral atoms.

---