

# 11. GROUP 18 ELEMENTS

## (ZERO GROUP ELEMENTS)

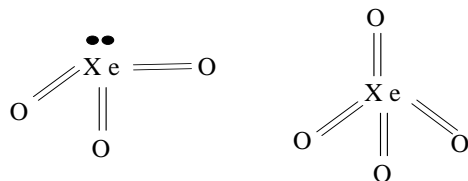
### PREVIOUS EAMCET BITS

1. The number of  $p\pi - d\pi$  bonds present in  $\text{XeO}_3$  and  $\text{XeO}_4$  molecules respectively (2009 E)

- 1) 3, 4                      2) 4, 2                      3) 2, 3                      4) 3, 2

Ans : 1

Sol:



$3\sigma, 3\pi$

$4\sigma, 4\pi$

2. The compound in which the number of  $d\pi - p\pi$  bonds are equal to those present in  $\text{ClO}_4^-$  (2008 E)

- 1)  $\text{XeF}_4$                       2)  $\text{XeO}_3$                       3)  $\text{XeO}_4$                       4)  $\text{XeF}_6$

Ans: 2

Sol:



Three ( $p\pi - d\pi$ ) bonds are present

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3. Which of the following statements about noble gases are correct (2008 M)

- $\text{XeO}_3$  is an explosive tetrahedral molecule
- In Fisher – Ring is method a mixture of  $\text{CaCl}_2$  and  $\text{CaC}_2$  is used to remove  $\text{N}_2$  and  $\text{O}_2$
- He one Ne one chemically inert due to lack of d-orbitals and high ionization potential
- A+ 173 K He and Ne are absorbed on activated charcoal.

The correct answer is

- 1) I and II                      2) II and III                      3) I, II and IV                      4) I, II, III and IV

Ans: 2

Sol: II and III are correct statements , I and IV are wrong statements

4. Which one of the following noble gases is used in miner's cap lamp ? (2007 E)

- 1) Helium                      2) Neon                      3) Argon                      4) Krypton

Ans : 4

Sol: Krypton is used in Miner's Cap lamp

5. What is the correct order of occurrence (% by weight) in air of Ne, Ar and Kr (2006 E)

- 1)  $\text{Ne} > \text{Ar} > \text{Kr}$                       2)  $\text{Ar} > \text{Ne} > \text{Kr}$                       3)  $\text{Ar} > \text{Kr} > \text{Ne}$                       4)  $\text{Ne} > \text{Kr} > \text{Ar}$

Ans : 2

Sol: occurrence in air (% by weight) Ar (1.285) Ne ( $1 \times 10^{-3}$ ) Kr( $2.8 \times 10^{-4}$ )

6. Which of the following has pyramidal shape ? (2006 M)

- 1) XeF<sub>4</sub>                      2) XeO<sub>3</sub>                      3) XeF<sub>2</sub>                      4) XeF<sub>6</sub>

Ans: 2

Sol: In XeO<sub>3</sub> Xe atom undergoes sp<sup>3</sup> hybridisation. Shape of the molecule is pyramidal due to the repulsion between lone pair and bond pair of electrons.

7. Fischer – Ring's method of separation of noble gases mixture from air (2005 E)

- 1) 90% CaC<sub>2</sub> + 10% CaCl<sub>2</sub>                      2) Coconut charcoal  
3) Soda lime + potash solution                      4) 90% CaCO<sub>3</sub> + 10% urea

Ans: 1

Sol: In Fisher Ring's method of separation of noble gas mixture dry and pure air is passed over 90% CaC<sub>2</sub> + 10% CaCl<sub>2</sub>

8. Which of the following is not correct? (2005 M)

- 1) XeO<sub>3</sub> has four σ bond four π bonds  
2) The hybridization of Xe in XeF<sub>4</sub> is sp<sup>3</sup>  
3) Among noble gases, the occurrence (percent by weight) of argon is highest in air  
4) Liquid helium is used as cryogenic liquid

Ans: 1

Sol: In XeO<sub>3</sub> 3σ and 3π bonds are present

∴ First choice is wrong

9. In the Dewar's method of separation of noble gases, the mixture of noble gases is kept in contact with coconut charcoal at 173 K. Which one of the following gaseous mixture is not adsorbed on to the charcoal (2004 E)

- 1) Ar, Kr                      2) Xe, Kr                      3) He, Ne                      4) Xe, Kr

Ans: 3

Sol: At 173K adsorbed gases on coconut charcoal are Ar, Kr, Xe and unadsorbed gases are He and Ne

10. Noble gas used in atomic reaction is (2003 M)

- 1) Krypton                      2) Oxygen                      3) Neon                      4) Helium

Ans: 4

Sol: In nuclear reactors helium is used.

11. Which one of the following is a correct pair with respect to molecular formula of Xenon compound and hybridization state of Xenon in it (2002 E)

- 1) XeF<sub>4</sub>, sp<sup>3</sup>                      2) XeF<sub>2</sub>, sp                      3) XeF<sub>2</sub>, sp<sup>3</sup>d                      4) XeF<sub>4</sub>, sp<sup>2</sup>

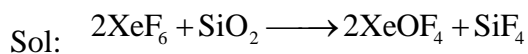
Ans: 3

Sol: Correct pair is XeF<sub>2</sub> sp<sup>3</sup>d all other are wrong

12. What are the products formed in the reaction of Xenon hexafluoride with silicon dioxide? (2002M)

- 1) XeSiO<sub>4</sub> + HF                      2) XeF<sub>2</sub> + SiF<sub>4</sub>                      3) XeOF<sub>4</sub> + SiF<sub>4</sub>                      4) XeO<sub>3</sub> + SiF<sub>2</sub>

Ans : 3

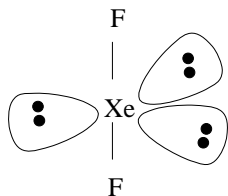


13. The number of lone pair of electrons present on Xe in  $\text{XeF}_2$  is **(2001 E)**

- 1) 3                      2) 4                      3) 2                      4) 1

Ans : 1

Sol: The structure of  $\text{XeF}_2$  contains three lone pair of electrons.



14. What is the atomic number (Z) of the noble gas that reacts with fluorine **(2001 )**

- 1) 54                      2) 10                      3) 18                      4) 12

Ans: 1

Sol: Xenon reacts with fluorine to form  $\text{XeF}_2$  (or)  $\text{XeF}_4$ . Therefore atomic number of Xe is 54

