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## NOBLE GAS ELEMENTS

Elements He, Ne, Ar, Kr, Xe and Rn are the elements of Group XVIII of the Periodic Table. These elements are called inert gas elements or NOBLE GAS ELEMENTS. Electronic Configurations

of inert gas elements are written as.

He 2  $1s^2$

Ne 10  $1s^2 2s^2 2p^6$

Ar 18  $1s^2 2s^2 2p^6 3s^2 3p^6$

Kr 36  $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6$

Xe 54  $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^{10} 5p^6$

Rn 86  $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^{10} 5p^6 6s^2 4f^{14} 5d^{10} 6p^6$

From the above electronic

configuration we see that in case

of He there are two electrons and other members of inert gas elements

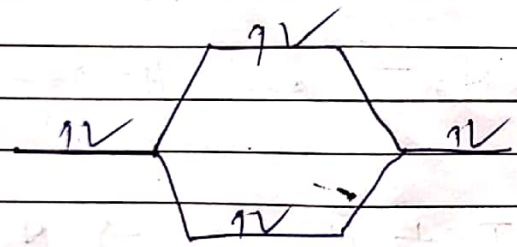
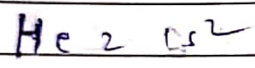
OR Noble gas elements possess eight electrons in their outermost orbit.

Due to stable configuration Ionization potential values are high. Tendency to gain electron is minimum.

Inert gas elements are Monatomic

This can be explained on the basis of

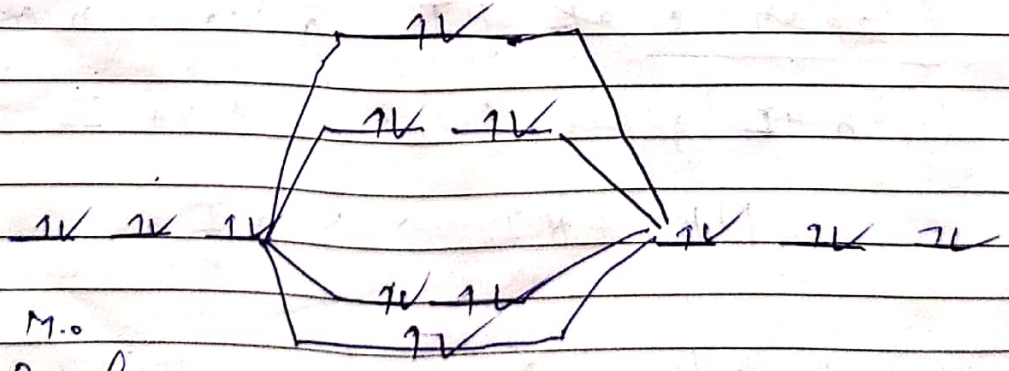
M.O Diagram. M.O diagram of He<sub>2</sub> molecule is drawn as.



$$B.O = \frac{2 - 0}{2} = 1$$

Bond order = 0

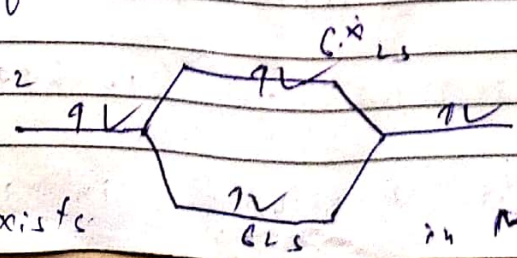
Ne<sub>2</sub> M.O. Diagram for Ne<sub>2</sub> is drawn as.



From the M.O diagram B.O for

Ne<sub>2</sub> and Ne<sub>2</sub> are zero

Means it exists



$$B.O = \frac{8 - 8}{2} = 0$$

in M.O. ATOMIC FORM