

MO Worksheet

1. (5 pts) Draw approximations of the (a) σ -bonding (b) σ -antibonding, and (b) π -bonding orbitals and (d) π -antibonding orbitals formed from combinations of p-orbitals in a diatomic molecule.

(a)

(b)

(c)

(d)

2. (15 pts) The bonding and electronic properties of oxygen fluoride (O_2) are best described using a molecular orbital representation. Complete the MO diagram for O_2 by filling in the electrons (**valance electrons only**) then answer the following questions.

(a) What is the electron configuration for dioxygen?

(b) What is the bond order for dioxygen?

(c) Is oxygen fluoride paramagnetic or diamagnetic?

(d) Will O_2^+ have a weaker or stronger bond than O_2 ?
Explain briefly.



