

Chemistry 102 Summer 2012-2013

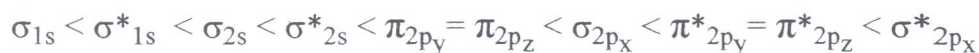
Quiz # 2

Name Key ID _____ Sec _____

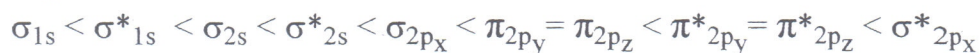
1 H 1.01	6 C 12.01	7 N 14.01	8 O 16.00
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The relative energies of molecular orbitals:

H₂ - N₂ :

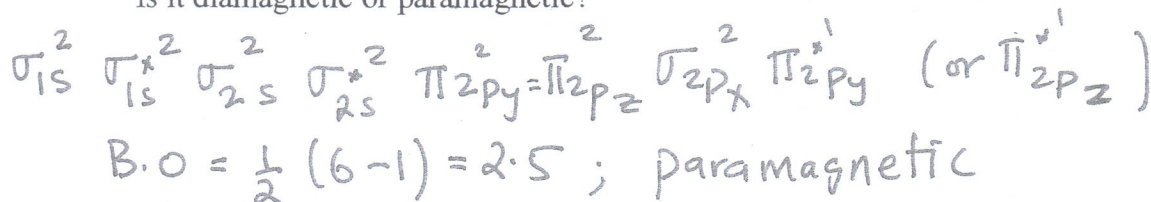


O₂ and F₂ :



Q1 . Write the electron configuration of N₂⁻ . What is the bond order of N₂⁻ ?

Is it diamagnetic or paramagnetic?



Q2. A 2.50 g sample of ethanol, C₂H₅OH, is combusted in a bomb calorimeter.

The temperature of the calorimeter increases by 14.2°C. If the heat capacity of the calorimeter is 5.22 kJ/°C, what is the heat evolved per mole of ethanol combusted?

heat evolved per mole of ethanol combusted = - <u>1.37 × 10³</u> kJ
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Q3. The molar enthalpies of formation for H₂O(l) and H₂O(g) are -285.8 kJ and -241.8 kJ, respectively. How much heat is released when 25 g of water condenses from the gas to the liquid phase?

- a. -2.4 kJ b. -32 kJ c. -61 kJ d. -88 kJ e. -127 kJ

Q4. Given: 2Pb (s) + 3O₂ (g) → 2PbO (s) + 2SO₂ (g) ΔH = -830.8 kJ

Then for PbO (s) + SO₂ (g) → Pb (s) + 3/2O₂ (g) ΔH = +415.4 kJ