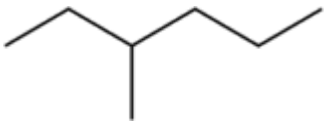
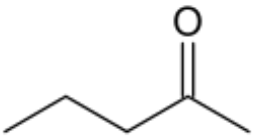
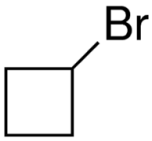
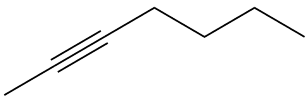
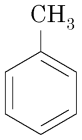
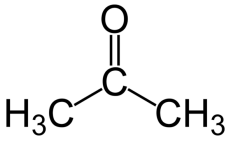
CH 222
Sample Quiz #3 Name: _____ Lab Section: _____
Answers

---

1. For the molecules B_2 and B_2^{2-}:
   a. Draw molecular orbital energy level diagrams. (6 points)
   b. For each molecule determine the bond order *and* magnetic properties (para-/dia-magnetic) (2 points).
   c. Which has the longer bond? (1 point)
   d. Which has the highest bond energy? (1 point)

B_2: [core] $(\sigma_{2s})^2 (\sigma_{2s}^*)^2 (\pi_{2p})^2$ paramagnetic bo = 1 longest bond
B_2^{2-}: [core] $(\sigma_{2s})^2 (\sigma_{2s}^*)^2 (\pi_{2p})^4$ diamagnetic bo = 2 highest bond energy

2. Provide names or structures for the following organic molecules: (10 pts)

3-methylhexane	2-pentanone	cyclobutyl bromide
structure: 	*structure:* 	*structure:* 
$CH_3CH_2CH_2OH$	C_6H_6	CH_3-O-$CH_2CH_2CH_3$
1-propanol	**benzene**	**1-methoxypropane**
2-heptyne	toluene	acetone
structure: 	*structure:* 	*structure:* 

ethanal

structure: