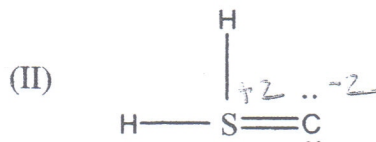
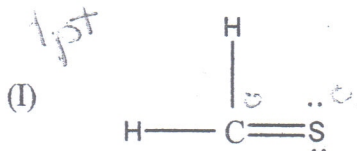


University of Bahrain, Chemistry Department

Chemistry 102, Quiz-1 (Lewis Structure and MOT)

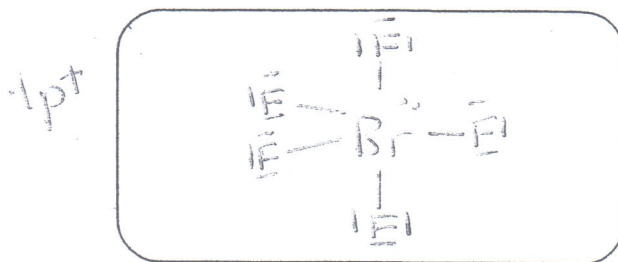
Name: Key ID#: \_\_\_\_\_ Sec: \_\_\_\_\_

Q1(2pts): Use formal charge to determine which of the following two Lewis structures is better:



1pt Structure (I) is better b/c of 0 formal charges on C & S

Q2(3.5pts): Draw Lewis structure for BrF<sub>5</sub>:



- 1/2 pt each
- (i) The geometry of the molecule is Square pyramidal
  - (ii) The molecule is polar/nonpolar polar
  - (iii) The hybridization on Br is sp<sup>3</sup>d<sup>2</sup>
  - (iv) The number of lone pairs on Br is 1
  - (v) The bond angles are 90° & 180°

Q3(4.5pts): Use MOT to complete the table below for F<sub>2</sub><sup>2-</sup> and C<sub>2</sub><sup>2+</sup>.

1/2 pt each

	F <sub>2</sub> <sup>2-</sup>	C <sub>2</sub> <sup>2+</sup>
Molecular electron configuration	<u>See below</u>	
Bond order	<u>0</u>	<u>1</u>
Does it exist?	<u>No</u>	<u>Yes</u>

Is F<sub>2</sub><sup>2-</sup> paramagnetic or diamagnetic? Diamagnetic

Which species has higher bond strength? C<sub>2</sub><sup>2+</sup>

Which species is not stable? F<sub>2</sub><sup>2-</sup>

