

Chem 10113, Quiz 5

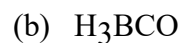
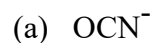
November 13, 2019

Name: _____

(Please Print)

IA (1)												VIII A (18)						
1	H 1.0080											B 10.811	C 12.011	N 14.007	O 15.999	F 18.998	Ne 20.179	
2	Li 6.9410	Be 9.0122											Al 26.982	Si 28.086	P 30.974	S 32.066	Cl 35.453	Ar 39.948
3	Na 22.990	Mg 24.305	IIIB (3)	IVB (4)	VB (5)	VIB (6)	VII B (7)	VIII B (8)	VIII B (9)	VIII B (10)	IB (11)	IIB (12)	Ga 69.723	Ge 72.610	As 74.922	Se 78.960	Br 79.904	Kr 83.800
4	K 39.098	Ca 40.078	Sc 44.956	Ti 47.880	V 50.942	Cr 51.996	Mn 54.938	Fe 55.847	Co 58.933	Ni 58.690	Cu 63.546	Zn 65.380	Ga 69.723	Ge 72.610	As 74.922	Se 78.960	Br 79.904	Kr 83.800
5	Rb 85.468	Sr 87.620	Y 88.906	Zr 91.224	Nb 92.906	Mo 95.940	Tc 98.907	Ru 101.07	Rh 102.91	Pd 106.42	Ag 107.87	Cd 112.41	In 114.82	Sn 118.71	Sb 121.75	Te 127.60	I 126.90	Xe 131.29
6	Cs 132.91	Ba 137.33	La 138.91	Hf 178.49	Ta 180.95	W 183.85	Re 186.21	Os 190.20	Ir 192.22	Pt 195.09	Au 196.97	Hg 200.59	Tl 204.38	Pb 207.20	Bi 208.98	Po 208.98	At 209.99	Rn 222.02
7	Fr 223.02	Ra 226.03	Ac 227.03	Unq 261.11	Unp 262.11	Unh 263.12	Uns 262.12											

1. (9 points) For each of the following molecules or ions, write the *complete* Lewis electron dot formula. (*Note*: The chemical formulas, as written, reflect the skeletal structures.)



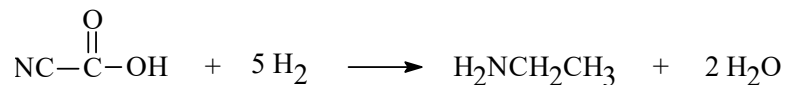
2. (2 points) (a) Referring to the question above, the C–O bond order in NCCO_2^- is _____.

(b) Of the three species above, which has the shortest C–O bond distance? _____.

3. (4 points) **SHOW ALL WORK.** Using the bond energy data provided, estimate the enthalpy change (ΔH°) for the following chemical reaction.

Bond Energy (kJ/mole)

H-H	436
C-H	414
N-H	389
O-H	464
C-C	347
C=C	611
C≡C	837
C-O	361
C=O	736
C≡O	1072
C-N	305
C=N	615
C≡N	891



4. (10 points) Apply **VSEPR** concepts to the following molecules. For each one, ***draw a clear 3-D structure*** and give a ***description*** of the shape (i.e., linear, trigonal planer, etc.). Also, ***state*** whether each molecule is expected to be ***polar*** or ***non-polar***.

