SI Sample Exam 4? I think it is haha. Alright y’all, there’s not a whole bunch of math in this one, so we gonna be focusing a lot on concepts and problems for this exam! FINISH STRONG Y’ALL. IT IS ALMOST THANKSGIVING BREAK.

Matching. Match the term with its definition

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| Pure Covalent bond | a. Oppositely charged ions held together by electrostatic attraction. |
| Polar Covalent bond | b. Neutral atoms held together by equally shared electrons |
| Ionic Bond | c. Partially charged atoms held together by unequally shared electrons |

1) In which of the following molecules are the bonds most polar? (from book checkpoint)

1. H2Se
2. H2O
3. CO2
4. BCl3
5. PCl5

2) Draw Lewis Structures for the following molecules and ions: (8.42)

1. NCl3
2. OCS
3. H2O2
4. CH3COO-
5. CN-
6. CH3CH2NH3+

3) Draw Lewis structures for the following ions: (8.48)

1. O22-
2. C22-
3. NO+
4. NH4+

4) Draw three resonance structures for the chlorate ion (ClO3-). Show formal charges (8.54)

5) Draw two resonance structures for diazomethane (CH2N2O. Show formal charges (8.56)

6) From the following data, calculate the average bond enthalpy for the N-H bond: (8.76)

NH3(g) -> NH2(g) + H(g) ΔHo= 435 kJ/mol

NH2(g) -> NH(g) + H(g) ΔHo= 381 kj/mol

NH(g) -> N(g) + H(g) ΔHo= 360 kJ/mol

7) In 1999 an unusual cation containing only nitrogen (N5+) was prepared. Draw three resononace structures of the ion, showing formal charges. (Hint: The N atoms are joined in a linear fashion) (8.109)

8) For the reaction C2H6(g) + O2(g) -> CO2(g) + H2O(g)

Predict the enthalpy of reaction from the average bond enthalpies (8.79)

9)Let me know what the geometries are using the Lewis Diagrams of the following:

1. SCN-
2. AlH4-
3. SnCl5-
4. H3O+
5. BeF42-
6. NH2-
7. CO32-
8. ICl2-
9. XeF4