

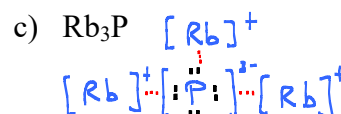
To be marked in class.

1. Define the following terms:

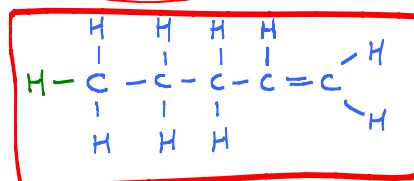
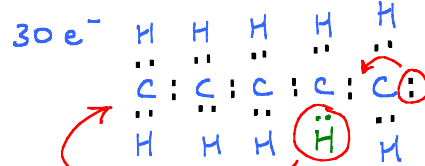
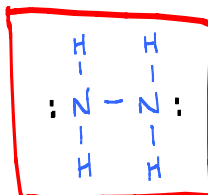
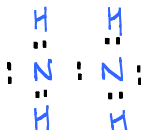
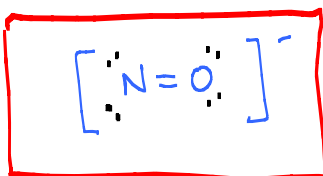
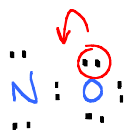
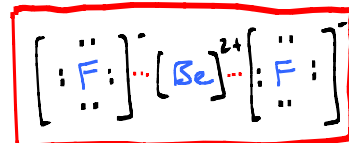
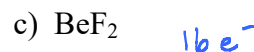
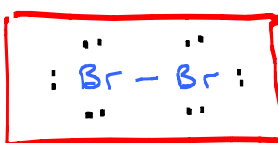
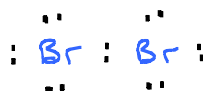
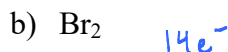
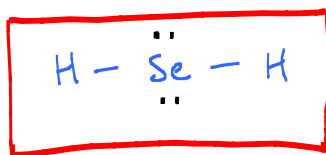
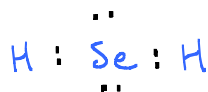
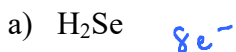
- Electronegativity –
- Open shell –
- Covalent bond –
- Valence electrons –
- Valence –
- Ionic bond –
- Polar covalent bond –

See your notes and/or glossary

2. Draw the Lewis Structure for each of the following ionic compounds (see notes for guidance):



3. Draw the Lewis Structure for each of the given compounds (show your work):



7

3

6

16

4. Which atom is bigger: Pb or Si? Why?

Pb. It has more shells.

5. Is it easier to break the double bond in O₂ or S₂? Why?

S₂. The electrons are held more tightly between the oxygens.

6. Explain how an ion is formed.

An atom with higher χ (typically a non-metal) steals one or more e⁻s from another atom (typically a metal). Two ions result.

7. Which ionic solid should have the higher melting temperature: AlN (s) or NaF (s)? Why?

AlN. Respective cations and anions are about the same size but AlN involves bigger charges.

8. What number of covalent bonds is each of the following atoms expected to form?

a) I 1 b) N 3 c) Se 2 d) B 3 e) P 3 f) C 4 g) O 2

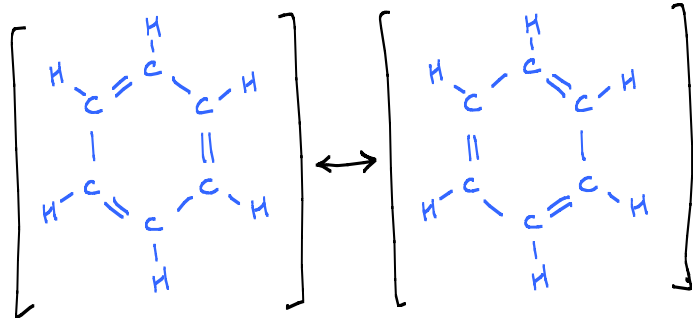
1/2 mark ea. for a max of 3 marks

9. What is the maximum number of covalent bonds each of the following atoms can form?

a) N 4 b) O 3 Because each can donate a lone pair to form a bond. This is known as a coordinate covalent bond.

10. Draw the Lewis structures for the circular molecule benzene, C₆H₆. Explain the significance of having more than one electron dot structure. What is the name for this phenomenon? Would you expect the molecule to have different carbon-carbon bond lengths? Explain.

1 mark for the two resonance structures



- When more than one Lewis structure exists, it means that the true molecule is a blend of these structures.
- The phenomenon is called Resonance.

- The blending of these two structures means that all C-C bonds will be equal in length.

11. Define the "octet rule" and account for any exceptions to it.

Each atom is most stable when its valence shell is filled and this is typically the 8 valence electrons of the s and p orbitals.

Exceptions include the electron deficient cases involving elements 1-5 as well as phosphorus and sulfur which can have more than 8 valence electrons.