

Name: _____

SCH 3U – Quiz
Octet Rule

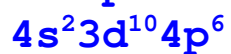
1. Fill in the following table to indicate how each of the following atoms behaves when it follows the octet rule to form positive or negative ions. The first three are done as examples.

Atom	Number of Electrons in Valence Shell	Loses or Gains	Number of Electrons Lost or Gained	Resulting Ion
$_{15}\text{P}$	5	gains	3	P^{3-}
$_{34}\text{Se}$	6	gains	2	Se^{2-}
$_{3}\text{Li}$	1	loses	1	Li^{1+}
$_{7}\text{N}$	5	gains	3	N^{3-}
$_{9}\text{F}$	7	gains	1	F^{1-}
$_{20}\text{Ca}$	2	loses	2	Ca^{2+}
$_{55}\text{Cs}$	1	loses	1	Cs^{1+}
$_{11}\text{Na}$	1	loses	1	Na^{1+}
$_{54}\text{Xe}$	8	neither	0	Xe^0
$_{50}\text{Sn}$	4	loses/gains	4/4	$\text{Sn}^{4+}/\text{Sn}^{4-}$
$_{1}\text{H}$	1	loses	1	H^{1+}
$_{17}\text{Cl}$	7	gains	1	Cl^{1-}
$_{16}\text{S}$	6	gains	2	S^{2-}
$_{84}\text{Po}$	6	gains	2	Po^{2-}
$_{56}\text{Ba}$	2	loses	2	Ba^{2+}
$_{13}\text{Al}$	3	loses	3	Al^{3+}
$_{51}\text{Sb}$	5	gains	3	Sb^{3-}
$_{31}\text{Ga}$	3	loses	3	Ga^{3+}

2. For each of the following, either show the end of the electron configuration or show the element that corresponds to the end of the electron configuration:

Element Symbol	Electron Configuration
${}_{15}\text{P}$	$3p^3$
Sb	$5p^3$
Au	$5d^9$
${}_{71}\text{Lu}$	$5d^1$
${}_{102}\text{No}$	$5f^{14}$
La	$4f^1$
Fr	$7s^2$
Pu	$5f^6$

3. Write the complete electron configuration for Schlenkium, which is element 118 the next noble gas.



4. Marking Scheme

- one mark for each for
 - Alkali Metals,
 - Alkaline Earth Metals,
 - Halogens,
 - Noble Gases
- one more mark for all of
 - Boron Group,
 - Carbon Group,
 - Nitrogen Group,
 - Oxygen Group

- clearly stated location of the
 - main group
 - transition metals
 - rare earth metals

- clearly stated location for all 5 diatomic gases
- clearly stated location for all 7 monatomic gases
- clearly stated location for all three (or two) liquids
- clearly show stairs and a statement that clearly shows where the metals are and where the non-metals are
- clear indication that hydrogen is classified as a non-metal

- label of K, L, M, N, O, P, Q

- clearly stated location for s,p,d and f block

USE THE PERIODIC TABLE GOOD VERSION FOR THE ANSWER KEY
PAGES 6 TO 10 ONLY

