

# Electron Configurations

Name \_\_\_\_\_

Date \_\_\_\_\_

## PART A – ORBITAL DIAGRAMS & LONGHAND ELECTRON CONFIGURATION

Use the patterns within the periodic table to draw orbital diagrams and write longhand electron configurations for the following atoms.

	Symbol	# e <sup>-</sup>	Orbital Diagram and Longhand Electron Configuration
1.	Mg		
2.	P		
3.	V		
4.	Ge		
5.	Kr		
6.	O		
7.	I		

8.	Se		
9.	Cr		
10.	Mn		
11.	Mo		
12.	Ca		
13.	Hg		
14.	Zn		
15.	Fe		

**PART B – SHORTHAND ELECTRON CONFIGURATION**

Use the patterns within the periodic table to write the shorthand electron configurations for the following elements.

	Symbol	# e <sup>-</sup>	Shorthand Electron Configuration
16.	Ca		
17.	Pb		
18.	F		
19.	U		
20.	Br		
21.	Sn		
22.	Si		
23.	Cd		
24.	Bi		
25.	V		
26.	Co		
27.	Zr		
28.	Ti		
29.	Ga		
30.	As		

**PART B – RULES OF ELECTRON CONFIGURATIONS**

Identify the atom represented below. The number of electrons is correct, but there is something wrong with each of the electron configurations. Which of the following “rules” is being violated in each electron configuration below? Explain your answer for each. **Hund’s Rule, Pauli Exclusion-Principle, Aufbau Principle.**

31.	$\uparrow\downarrow$ $\uparrow\downarrow$ $\uparrow\downarrow$ — — 1s   2s   2p
32.	$\uparrow\downarrow$ $\uparrow\downarrow$ $\uparrow\downarrow$ $\uparrow\downarrow$ $\uparrow\downarrow$ — $\uparrow\downarrow$ $\uparrow$ $\uparrow$ 1s   2s   2p   3s   3p
33.	$\uparrow\downarrow$ $\uparrow\downarrow$ $\uparrow\downarrow$ $\uparrow\downarrow$ $\uparrow\downarrow$ $\uparrow\uparrow$ $\uparrow\downarrow$ $\uparrow\downarrow$ $\uparrow$ 1s   2s   2p   3s   3p
34.	$\uparrow\downarrow$ $\uparrow\downarrow$ $\uparrow\downarrow$ $\uparrow\downarrow$ $\uparrow\downarrow$ $\uparrow\downarrow$ $\uparrow\downarrow$ $\uparrow\downarrow$ $\uparrow\downarrow$ $\uparrow\downarrow$ $\uparrow\downarrow$ $\uparrow\downarrow$ $\uparrow\downarrow$ $\uparrow\downarrow$ 1s   2s   2p   3s   3p   3d
35.	$1s^2 2s^2 2p^6 3s^3 3p^4$
36.	$1s^2 2s^2 2p^6 3s^2 3p^6 3d^{10} 4s^2 4p^6 5s^1$
37.	[Xe] $4d^{10} 5s^2 5p^3$ (The atom has 51 electrons-HINT)
38.	[Rn] $7s^2 4f^1$