Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Electron Configuration Worksheet**

**Part 1 – Draw each of the following orbitals with labeled axis**

1. 1s, 2s
2. 2py, 2px, 2pz
3. 3dxy, 3dxz, 3dyz, 3dx2-y2, 3dz2

**Part 2: Write the electron configuration for these atoms.**

**Part 3: Write the core notation for these atoms.**

1. Be
2. N
3. Ne
4. Mg
5. Si
6. Ar
7. Y
8. Ge
9. Xe
10. Mn
11. Zn
12. Ag
13. P
14. Sc
15. Na
16. Cl
17. Se
18. Mo

**Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Part 4: Write the core notation for these atoms.**

1. Hg
2. Ce
3. Cm
4. Mt
5. Pu
6. Po
7. Bk
8. U

**Part 5: Write core notation for each of the following ions. State if the ion is isoelectronic with a noble gas, and if so, state which gas.**

1. Fe3+
2. Cl-
3. Cu+
4. Cu2+
5. Mn3+
6. O2-
7. Hg2+
8. Sn2+
9. Sn4+
10. Br-
11. S2-
12. Au+

**Part 6: Write core notation for each atom or ion. Give an *s* to *d* electron elevation if necessary**

1. Mo
2. Pd
3. Ag
4. Ag+
5. Hg
6. Au

**Part 7: State the number of valence electrons. (\*full *d* orbitals and core electrons don’t count)**

1. Se
2. Te
3. F-
4. Ni
5. Pb2+
6. Zn
7. Ag+
8. Mn2+
9. P
10. Xe
11. Ca
12. Cs
13. Ge
14. Fe3+
15. I5+
16. Sn
17. Tc7+
18. As
19. Al3+
20. Al
21. Sr
22. Bi
23. Mo4+
24. Au+

**Part 8: Short Answer Questions**

1. What chemical family ends in an s1 configuration?
2. What chemical family ends in an s2 configuration?
3. What chemical family ends in an s2p5 configuration?
4. What chemical family ends in an s2p6 configuration?
5. What chemical family is the d block?
6. What chemical family is the f block?
7. What quantum number represents orbital shape? What are the orbital shapes for p?
8. Why are the noble gases so unreactive?
9. What happens to orbital energy level and size as the principal quantum number n increases?