

**Atomic Theory 1.8**  
**Electron Configuration and Orbital Diagrams**  
**Worksheet**

- 1) What is the electron configuration for nitrogen in its ground state? (long form)
- 2) What is the electron configuration for manganese in its ground state? (long form)
- 3) What is the ground state electron configuration of tin? (long form)
- 4) What is the electron configuration for copper in its ground state? (long form)
- 5) What is the ground state electron configuration of arsenic? (long form)
- 6) What is the ground state electron configuration of zirconium? (short form)
- 7) What is the ground state electron configuration of tungsten? (short form)
- 8) What is the ground state electron configuration of palladium? (short form)
- 9) What is the ground state electron configuration of lead? (short form)
- 10) What is the ground state electron configuration of rutherfordium? (short form)
- 11) What is the ground state electron configuration of plutonium? (short form)
- 12) Which of the following are isoelectronic:
  - a. Ne and F<sup>-</sup>
  - b. Ca<sup>2+</sup> and Se<sup>2-</sup>
  - c. N and F<sup>-</sup>
  - d. I<sup>-</sup> and Ba<sup>2+</sup>
  - e. K<sup>+</sup> and Ca<sup>2+</sup>
  - f. Al and Ga
- 13) Which of the following are isoelectronic? Justify your choice.
  - a. Ne and O<sup>2-</sup>
  - b. K<sup>+</sup> and Cl
- 14) Draw an orbital diagram for carbon in its ground state.
- 15) Draw an orbital diagram for sulfur in its ground state.
- 16) Draw an orbital diagram for iron in its ground state.
- 17) Draw the orbital diagram for silicone in its ground state.
- 18) Draw an orbital diagram for phosphorus in its ground state.
- 19) Draw an orbital diagram for selenium in its ground state.