

Part I:

- 1) Pick a partner and go sit with that partner. (Pick a partner who will help you!)
- 2) Your assigned element is: _____
- 3) Use your periodic table (not your notes) to write out the electron configuration (no arrows!) of your assigned element.
- 4) Circle the valence electrons.
- 5) Draw the Lewis dot diagram for the element.
- 6) Put your final answer on a colored piece of paper. Use stickers for the dots on your Lewis dot diagram!
- 7) Put all group member names on the colored piece of paper.
- 8) Turn your colored piece of paper in.

Part II (you may use your notes for this section):

- 1) (a) Write out the de Broglie equation: _____

- (b) What was a conclusion from the de Broglie equation? _____

- 2) (a) State the Heisenberg Uncertainty Principle: _____

- (b) Use the Heisenberg Uncertainty Principle to explain one reason the Bohr model of the atom was wrong: _____

- 3) What was Erwin Schrödinger's major scientific accomplishment? _____

- 4) (a) What are the quantum numbers? _____

- (b) How many quantum numbers are there? _____
- 5) (a) What does the principal quantum number tell about an orbital? _____

- (b) What are the values of the principal quantum number? _____
- 6) (a) What does the secondary quantum number tell about an orbital? _____

- (b) What are the values of the secondary quantum number? _____
- 7) (a) What does the magnetic quantum number tell about an orbital? _____

- (b) What are the values of the magnetic quantum number? _____

- 8) (a) What does the spin quantum number tell about an electron? _____

- (b) What are the values of the spin quantum number? _____
- 9) (a) What are valence electrons? _____
- (b) What is the maximum number of valence electrons in an atom? _____
- 10) (a) How are sublevels 2s and 2p the same? _____
- (b) How are sublevels 2s and 2p different? _____
- (c) Draw and label the shapes for 2s and 2p:
- 11) (a) Compare sublevels 3d and 4d: _____

- (b) Contrast sublevels 3d and 4d: _____

- (c) Draw and label the shapes for 3d and 4d:
- 12) (a) Draw the orbital diagram (arrows!) of manganese:
- (b) Circle its valence electrons.
- (d) Draw its Lewis dot diagram.