

NAME _____ DATE _____ PER _____

PRACTICE QUIZ – Basic Atomic Structure, Ions, Binary Ionic Compounds
CIRCLE ALL CORRECT ANSWERS. THERE MAY BE MORE THAN ONE
CORRECT ANSWER FOR EACH OF THE FOLLOWING QUESTIONS.

- 1) Which subatomic particles are located in the nucleus?
a) protons b) electrons c) neutrons
 - 2) Which 2 subatomic particles are most massive (have the most mass)?
a) protons b) electrons c) neutrons
 - 3) Which subatomic particles are located outside the nucleus?
a) protons b) electrons c) neutrons
 - 4) Which subatomic particles have a charge of +1?
a) protons b) electrons c) neutrons
 - 5) Which subatomic particles have a charge of -1?
a) protons b) electrons c) neutrons
 - 6) Which subatomic particles are transferred from one atom to another during the formation of an ionic compound?
a) protons b) electrons c) neutrons
 7. Orbitals are regions of space around the nucleus where a/an _____ is likely to be located.
a. proton b. electrons c. nucleus d. neutrons
 8. What is the maximum number of electrons that can exist in any p *sublevel*?
a. 1 b. 2 c. 3 d. 4 e. 5 f. 6
 9. What is the maximum number of electrons that can exist in any f *orbital*?
a. 1 b. 2 c. 4 d. 6 e. 14 f. 18
- 10-12. Matching
- a. Hund's Rule b. Aufbau Principle c. Pauli Exclusion Principle
- ___ 10. States that electrons fill beginning with the lowest energy levels first.
- ___ 11. States that electrons fill orbitals of the same energy (degenerate orbitals) by adding one electron to each orbital all with the same spin, and then doubling up.
- ___ 12. States that any orbital can hold a maximum of two electrons with opposite spins.

13. ATOMS

Nuclear Symbol	Atomic #	Mass #	# p ⁺	#e ⁻	#n ⁰	Hyphen Notation
	13	27				
				82	125	
						STRONTIUM-88

14. IONS

Nuclear Symbol	Atomic #	Mass #	# p ⁺	#e ⁻	#n ⁰	Charge
¹¹³ Cd ⁺²						
				36	39	-3
	11	23		10		

15. Fill the orbital diagram for Sn

16. Which of the following has an invalid sublevel designation?
a. 6s b. 3d c. 2p d. 4f e. 2d

Fill in the blank

17. An atom is the smallest _____ of an element which retains the _____ of that element.

18. Arrange the following sublevels in order of increasing energy (Place 1 in the blank for the lowest energy and 8 for the highest energy).

____ 3d ____ 2s ____ 5p ____ 4f ____ 6p ____ 5s ____ 5f
____ 6d

19. Write the complete electron configuration for Ba.

20. Write the complete electron configuration for the Al.

21. Write the noble gas electron configuration notation of Ge.

22. Write the noble gas electron configuration notation of In.

23. Write the outer electron configuration (battleship notation) for Pd. (only the last sublevel)

24. What is the outer electron configuration (battleship notation) for Te? (only the last sublevel)

25. Use the following data to calculate the average atomic mass of lead.

ISOTOPES	MASS (amu)	Percent Abundance
Pb-206	205.946	9.35
Pb-207	206.941	73.8
Pb-208	207.941	14.5
Pb-209	208.939	2.35

SHOW YOUR WORK AND CIRCLE FINAL ANSWER.