CST Review Practice Problems Atomic Structure & Nuclear Chemistry Name

1) Which two subatomic particles have nearly the same mass?

2) Write the symbol for an electron.

3) What are the relative electrical charges for each subatomic particle?

4) Rank the subatomic particles in increasing actual mass order.

5) The positive center that contains most of the mass in an atom is known as the _____.

6) Most of the volume of an atom is _____.

7) 1) Order Ca, Mg, Co, and Ni in terms of increasing mass.

8) 2) Order P, O, Mg, and Ti in terms of decreasing atomic #.

9) 3) Write isotope symbols for carbon-12, carbon-13, and carbon-14.

10) 4) Complete the table.

Element	protons	neutrons	electrons	atomic #	mass #
phosphorus	15	16			
aluminum			13		27
		61		47	

11) What kind of element is cobalt?

12) What kind of element is neon?

13) What is the last element in period 3?

14) The bottom of group 3A is which element?

15) How many electrons does magnesium (Mg) have for bonding?

16) How many electrons does chlorine (Cl) have for bonding?

17) What element group is calcium (Ca) found in?

18) Order the following elements in terms of increasing atomic radius: Mg Ar Cl P

19) Order the following elements in terms of decreasing atomic radius: Al B In Ga

20) Order the following elements in terms of decreasing atomic size: V Sr Si Ne

21) Order the following elements in terms of increasing atomic size: Ag Hg F As

22) Order the following elements in terms of increasing electronegativity: Ti Ca Ni Br

23) Order the following elements in terms of decreasing electronegativity : Bi P As N

24) Order the following elements in terms of decreasing electronegativity : Be K Cs Mg

25) Order the following elements in terms of increasing electronegativity : Mo S Ba Zn

26) Order the following elements in terms of increasing ionization energy: Na S Ar Al

27) Order the following elements in terms of decreasing ionization energy : Ca Ba Mg Ra

28) Order the following elements in terms of decreasing ionization energy : Fe Zr Rb Si

29) Order the following elements in terms of increasing ionization energy : He Cu Fr C

30) How many valence electrons are found in each of the following atoms? K Al S N Xe

31) Which of the following have exactly four valence electrons? Fe O F C Se Si

32) What happens to the size of a potassium (K) atom when it forms a positive ion?

33) Will nitrogen get bigger or smaller when it gains electrons to become a negative ion?

34) Predict the radius changes to each of the following: Al Cu S Pb P Mg He

35) Two protons will be <u>attracted to/repelled by</u> each other.

36) Why are protons held together in the nucleus?

37) The release of energy in nuclear reactions is explained by small changes in _____.

38) A large unstable nucleus breaking apart is known as _____.

39) Small hydrogen isotopes coming together to form a helium nucleus is known as _____.

40) Why does radioactive decay occur?

41) An alpha particle contains _____ protons, _____neutrons, and _____ electrons.

42) An electron is given off during which type of decay?

43) Does gamma radiation occur by itself?

44) A thin sheet of cardboard would be most effective at blocking which type of radiation?

45) Rank the three radiation types in order of increasing energy then decreasing penetrating ability.