Chem. 100 Exam II (Practice Test)

ATOMIC STRUCTURE:

The following information applies to subatomic particles. If the correct answer is Proton, mark "A," neutron, mark "B," electron, mark "C." If the answer is correct for more than one, mark all correct answers.

1. The mass of the particle doesn't weigh enough to worry about.

2. The mass of the particles is 1 a.m.u.

3. This particle is located outside the nucleus.

4. This particle is found only in the nucleus.

5. This particle has a charge of –1.

6. This particle has no charge.

7. This particle has a charge of +1.

8. The symbol of this particle is p^+ or $_{1}H$.

For the following element, $_{30}Zn^{64}$ answer the following questions related to the configuration.

1. The atom contains the following number of shells:
   (a) 3 (b) 5 (c) 4

2. For this atom, shell #3 contains the following number of electrons:
   (a) 2 (b) 18 (c) 8

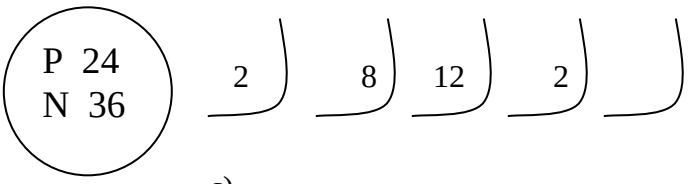
3. This atom would have the following # of neutrons (in the nucleus):
   (a) 30 (b) 64 (c) 34

4. This atom would have the following # of electrons (total):
   (a) 30 (b) 34 (c) 64

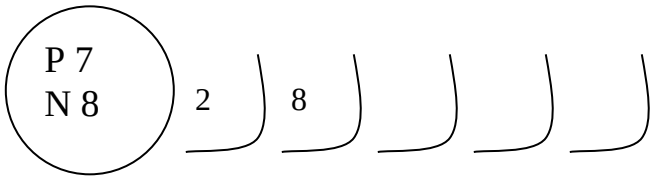
5. This atom would have the following # of protons (in the nucleus):
   (a) 34 (b) 64 (c) 30

6. Using the following diagrams, answer these questions: Mark "all" correct answers.

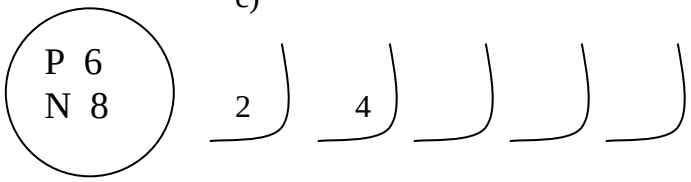
a)



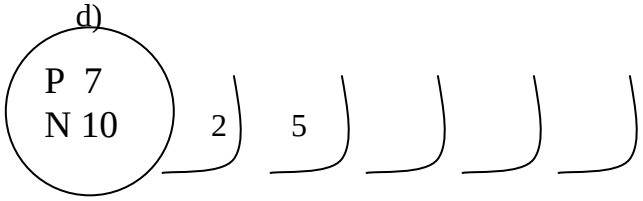
b)



c)



d)



a. Which are isotopes?
b. Which is a metal?
c. Which is a non-metal?
d. Which is an ion?
e. Which are atoms?
f. What is the atomic number of element d?
(a) 7 (b) 18 (c) 17

g. What is mass number of element b?
(a) 8 (b) 10 (c) 15 (d) 25

h. Which element has 4 valence electrons?

7. Draw the electron dot symbols for the following:
a. francium
b. iodine
c. H_2O
d. CO_2
e. CH_4

8. Tell whether the following compounds are:
(a) covalent (b) salt (c) acid (d) base

a. N_2O_3 b. $NH_4C_2H_3O_2$ c. SiS_2 d. $NaHSO_4$

e. PbI_2 f. H_2SO_3 g. $Al(OH)_3$ h. Co_2S_3

i. FrOh j. NH_4HSO_3 k. HI l. SnI_4

m. RbOH n. $HClO_3$

9. The name of the following compound, SiS_2 is:
(a) Sand disulfide (b) Silver disulfide (c) Silicon disulfide
(d) Tin disulfide (e) Selenium disulfide

10. The name of the following compound, N_2O_3 is:
(a) Sodium trioxide (b) dinickel oxide (c) Nitrogen trioxide
(d) dinitrogen oxide (e) dinitrogen trioxide

11. The name of the following compound $LiHCO_3$ is:
(a) Lithium acid (b) Lithium carbonate (c) Lead carbonate
(d) Lithium bicarbonate (e) Lead dicarbonate

12. The name of the following compound $NH_4C_2H_3O_2$ is:
(a) ammonia acetate (b) ammonium acetate (c) ammonium acetic
(d) ammonia acid (e) ammonium acid

13. The correct formula for the compound, carbon tetrachloride is:
(a) CCl_3 (b) CCl_5 (c) CCl_4 (d) $CaCl_4$ (e) Ca_4Cl

14. The correct formula for the compound, potassium bisulfite is:
(a) KHSO3 (b) $KHSO_4$ (c) K_2SO_3 (d) K_2SO_4 (e) PSO_3

15. The correct formula for the compound Tin (II) hydroxide is:
(a) $Ti(OH)_2$ (b) $Sn(OH)_2$ (c) Ti_2OH
(d) Sn_2OH (e) none of these are correct

16. The correct formula for the compound nickel II chlorate is:
(a) N_2ClO_3 (b) $NiClO_4$ (c) Ni_2ClO_3
(d) $NClO_4$ (e) none of these are correct

17. How many total ions does the compound $NaHSO_4$ contain?
(a) 3 (b) 6 (c) 2

29. How many carbon ions are there in this compound, C_2Br_6?
(a) 2 (b) 0 (c) 8

30. How many acetate ions are there in this compound, $NH_4C_2H_3O_2$?
(a) 1 (b) 5 (c) 2

31. How many hydroxide ions are in the following compound? $(NH_4)_2S$?

(a) 2 (b) 0 (c) 3

32. The molecular mass (mass of 1 molecule) of CO is:

(a) 28g (b) 28 a.m.u. (c) 28 moles (d) 12 a.m.u. (e) $6.02\ X10^{23}$

33. The molar mass (mass of 1 mole) of CO is:

(a) 28g (b) 28 a.m.u. (c) 28 moles (d) 12 a.m.u. (e) 6.02×10^{23}

34. The molar mass of $A1(OH)_3$ is:

(a) 87 (b) 46 (c) 78 (d) 64 (e) 108

35. The molar mass of NH_4HCO_3 is:

(a) 79 (b) 47 (c) 97

36. The mass (in grams) of 3.0 moles of zinc is:

(a) 169.2 (b) 192.6 (c)196.2

37. How many moles of NO_2 are there in 9.2 grams of NO_2?

(a) 0.2 (b) 2.0 (c) 0.02

38. What is the mass (in grams) of 15.0 moles of H_2O?

(a) 27 (b) 720 (c) 270

39. How many moles of oxygen are there in 8g?

(a) 0.5 (b) 0.25 (c) 0.75

Inter- and intraparticle forces:

40. The measure of an atom's attraction for the electron in a bond is called:

(a) electron affinity (b) electronegativity (c) electron attraction

41. On the periodic chart, the electronegativity _____ as you proceed from left to right.
(a) increases (b) decreases

42. Which of the following elements has the greater electronegativity?

(a) Be (b) C (c) F

43. Which of the following elements has the greater electronegativity?

(a) Na (b) Rb (c) Fr

44. On the periodic chart, the electronegativity _____, as you go from the top of the chart to the bottom.

(a) increases (b) decreases

45. Chemical bond that arises from the sharing of electrons between 2 atoms is called: (a) Ionic bond (b) Covalent bond (c) Ion-Dipole

46. The attraction between the partially positive end of 1 polar molecule and the partially negative end of another polar molecule is called:

(a) Dipole-Dipole (b) Ion-dipole (c) Dipole-induced-dipole

47. London forces is the attraction between:

(a) 2 atoms (b) 2 ions (c) 2 polar molecules

(d) nonpolar molecules (e) a molecule and an ion

48. The “strongest” of all of the 7 bonds/forces studies is the:

(a) ionic bond (b) covalent bond (c) hydrogen bond

49. A dipole-dipole is the attraction between:

(a) molecule/ion (b) polar/nonpolor molecule (c) 2 polar molecules

50. The hydrogen bond, dipole-dipole, dipole-induced dipole, and London forces are all attractions between:

(a) molecules (b) ions (c) atoms