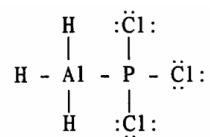
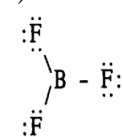
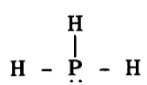
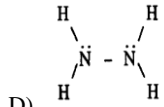
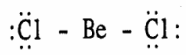


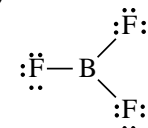
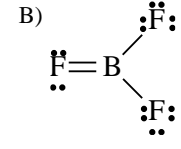
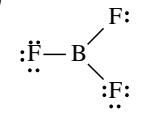
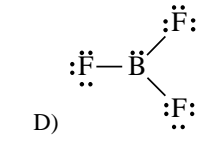
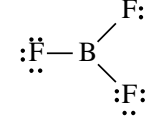
Dougherty Valley HS Chemistry
Fall Test #2 - Practice Test

This practice test is a general guideline to help you study. It is NOT a definitive list. There are potentially things on here that will not show up on the test, and there are potentially things not on this list that will show up on the test. Material that appeared in Warm Ups, Notes, Homework, Classwork, Labs, Study Materials, etc are all have the potential to appear on the test. **Please time yourself! This part of the practice test should take a maximum of 100 minutes to ensure you are going fast enough to finish the actual Test in class!**

- Cl and I have similar chemical properties because they
 - are both metals
 - are in the same chemical period
 - have the same number of e⁻ in their outer energy levels
 - have the same number of stable isotopes
 - none of these
- The noble gases contain how many valence electrons?
 - 1
 - 7
 - 0
 - 8
 - none of these
- The # of electrons in the third sublevel of an iron atom is
 - 3
 - 6
 - 8
 - 26
 - 56
 - "Principle Energy Level" is the energy level, 1-7
 - "Sublevel" is the TYPE of orbital, 1st = s, 2nd = p, 3rd = d, 4th = f
- Which element has the fewest electrons in its valence shell?
 - Cs
 - Mg
 - P
 - O
 - Br
- The element with atomic number 113 would be a member of
 - the halogens
 - the transition elements
 - the noble gases
 - the Group 13 elements
 - none of these
- Rank the following from **smallest to largest** atomic radius.
 - O, Zn, Ca, Ba
 - O, Ca, Zn, Ba
 - Ba, Ca, Zn, O
 - O, Zn, Ba, Ca
 - Ca, Ba, Zn, O
- Which of the following has the smallest atomic radius?
 - N
 - F
 - Br
 - Cl
 - S
- Which of the following has the highest ionization energy?
 - Al
 - Si
 - P
 - As
 - Sb
- Which of the following contains only one unshared pair of e⁻?
 - NH₃
 - H₂O
 - CH₄
 - NaCl
 - BeF₃
- Which of the following exhibits the correct increasing orders for both atomic radius and ionization energy, respectively?
 - S, O, F, and F, O, S
 - F, S, O, and O, S, F
 - S, F, O, and S, F, O
 - F, O, S, and S, O, F
 - none of these
- Order S, Cl, and F in terms of increasing ionization energy.
 - S, Cl, F
 - Cl, F, S
 - F, S, Cl
 - F, Cl, S
 - S, F, Cl
- Order S, Cl, and F in terms of increasing atomic radii.
 - S, Cl, F
 - Cl, F, S
 - F, S, Cl
 - F, Cl, S
 - S, F, Cl
- Order the following ions from **smallest to largest atomic size**.
As³⁻, Se²⁻, Sr²⁺, Rb⁺, Br⁻
 - As³⁻ < Se²⁻ < Br⁻ < Rb⁺ < Sr²⁺
 - Sr²⁺ < Rb⁺ < As³⁻ < Se²⁻ < Br⁻
 - As³⁻ < Se²⁻ < Br⁻ < Sr²⁺ < Rb⁺
 - Rb⁺ < Br⁻ < Sr²⁺ < As³⁻ < Se²⁻
 - Sr²⁺ < Rb⁺ < Br⁻ < Se²⁻ < As³⁻
- For SF₆, the central sulfur atom shares _____ electrons.
 - 4
 - 8
 - 10
 - 12
 - none of the above, because SF₆ is an ionic compound
- When the following is balanced, what is the sum of the coefficients?
Al₂(SO₄)₃ + Ca(OH)₂ → Al(OH)₃ + CaSO₄
 - 4
 - 9
 - 8
 - 3
 - 10
- A phosphorus atom needs to gain _____ electrons to achieve a noble gas configuration.
 - 2
 - 3
 - 4
 - 5
 - 6
- In the balanced molecular equation for the neutralization of sodium hydroxide with sulfuric acid (H₂SO₄), the products are:
 - NaSO₄ + H₂O
 - NaSO₃ + 2H₂O
 - 2NaSO₄ + H₂O
 - Na₂S + 2H₂O
 - Na₂SO₄ + 2H₂O

18. Roundup, an herbicide manufactured by Monsanto, has the formula $C_3H_8NO_5P$. How many moles of molecules are there in a 349.7-g sample of Roundup?
- 0.4835
 - 2.532
 - 2.068
 - 19.43
 - none of these
19. How many of the following molecules possess dipole moments? BH_3 , CH_4 , PCl_5 , H_2O , HF , H_2
- 1
 - 2
 - 3
 - 4
 - 5
20. In the Lewis structure for diatomic nitrogen there is (are)
- a single bond between the nitrogens.
 - a double bond between the nitrogens.
 - a triple bond between the nitrogens.
 - three unpaired electrons.
 - none of the above.
21. What is the correct chemical formula for cupric oxide?
- Cu_2O_3
 - Cu_3O
 - CuO_3
 - Cu_3O_2
 - CuO
- Identify the type of reaction using the following choices:
- Synthesis
 - Decomposition
 - Single Replacement
 - Double Replacement
 - Combustion
22. $2HCl \rightarrow H_2 + Cl_2$
23. $2H_2 + O_2 \rightarrow 2H_2O$
24. $C_2H_5OH + 3O_2 \rightarrow 2CO_2 + 3H_2O$
25. $2Al + 3Pb(NO_3)_2 \rightarrow 3Pb + 2Al(NO_3)_3$
26. Balanced chemical equations imply which of the following?
- Numbers of molecules are conserved in chemical change.
 - Numbers of atoms are conserved in chemical change.
 - Volume is conserved in chemical change.
 - a and b
 - b and c
27. When phosphorus and chlorine atoms combine to form a molecule of PCl_3 , 6 electrons will be
- Shared equally
 - shared unequally
 - Gained
 - Lost
 - evenly distributed
28. Atoms w/ very similar electronegativity values tend to form
- no bonds.
 - covalent bonds.
 - triple bonds.
 - ionic bonds.
 - none of these
29. A reaction occurs between sodium carbonate and hydrochloric acid producing sodium chloride, carbon dioxide, and water. The correct set of coefficients, respectively, for the balanced reaction is:
- 3 6 6 3 4
 - 8 6 5 10 5
 - 5 10 10 5 5
 - 1 2 2 1 1
 - none of these
30. What type of reaction is below?
 $Na_2CO_3 + H_2SO_4 \rightarrow Na_2SO_4 + H_2CO_3$
- Synthesis
 - Decomposition
 - Single Replacement
 - Double Replacement
 - Combustion
31. Which of the following molecules is non-polar overall?
- SF_4
 - SF_2
 - CCl_4
 - H_2S
 - OCl_2
32. Which of the following has a dipole moment?
- CO_2
 - CO_3^{2-}
 - NH_4^+
 - PF_3
 - two of them do
33. Which of the following molecules has no dipole moment?
- CO_2
 - NH_3
 - H_2O
 - all
 - none
34. In the reaction between magnesium and sulfur, the magnesium atoms
- become anions.
 - become cations.
 - become part of polyatomic ions.
 - share electrons with sulfur.
35. For which compound does 0.256 mole weigh 12.8 g?
- C_2H_4O
 - CO_2
 - CH_3Cl
 - C_2H_6
 - none of these
36. Which of the following cannot exceed the octet rule?
- N
 - S
 - P
 - I
 - All of the atoms (a-d) can exceed the octet rule.
37. Aqueous solutions of barium chloride and silver nitrate are mixed to form solid silver chloride and aqueous barium nitrate. The balanced equation contains which one of the following terms?
- $AgCl(s)$
 - $2AgCl(s)$
 - $2Ba(NO_3)_2$
 - $BaNO_3$
 - $3AgCl(s)$

38. What is the coefficient for water when balanced?
 $\text{As}(\text{OH})_3(\text{s}) + \text{H}_2\text{SO}_4(\text{aq}) \rightarrow \text{As}_2(\text{SO}_4)_3(\text{aq}) + \text{H}_2\text{O}(\text{l})$
 A) 1
 B) 2
 C) 4
 D) 6
 E) 12
39. Which contains a central atom with sp^2 hybridization?
 A) 
 B) 
 C) 
 D) 
 E) 
40. How many grams are in a 6.980-mol sample of sodium hydroxide?
 A) 40.00 g
 B) 279.2 g
 C) 167.5 g
 D) 5.730 g
 E) 0.1745 g
41. What is the molar mass of ethanol ($\text{C}_2\text{H}_5\text{OH}$)?
 A) 45.06
 B) 42.04
 C) 46.07
 D) 34.06
 E) 62.07
42. Which of the following is most likely to be ionic?
 A) BaF_2
 B) Cl_2
 C) NH_3
 D) NO_3
 E) CH_4
43. Choose the compound with the most ionic bond.
 A) LiCl
 B) KF
 C) NaCl
 D) LiF
 E) KCl
44. Which of the following groups contains no ionic compounds?
 A) HCN , NO_2 , $\text{Ca}(\text{NO}_3)_2$
 B) PCl_5 , LiBr , $\text{Zn}(\text{OH})_2$
 C) KOH , CCl_4 , SF_4
 D) NaH , CaF_2 , NaNH_2
 E) CH_2O , H_2S , NH_3
45. The electron pair in a C-F bond could be considered
 A) closer to C because carbon has a larger radius and thus exerts greater control over the shared electron pair.
 B) closer to F because fluorine has a higher electronegativity than carbon.
 C) closer to C because carbon has a lower electronegativity than fluorine.
 D) an inadequate model since the bond is ionic.
 E) centrally located directly between the C and F.

46. The hybridization of the central atom in NH_3 is:
 A) sp
 B) sp^2
 C) sp^3
 D) dsp^3
 E) sp^3d^2
47. Which of the following Lewis structures best describes BF_3 ?
 A) 
 B) 
 C) 
 D) 
 E) 
48. This molecule shows the smallest number of lone pairs
 A) CH_3CHO
 B) CO_2
 C) CH_3Cl
 D) C_2H_6
 E) none
49. What is the coefficient for oxygen when balanced?
 $\text{NH}_3(\text{g}) + \text{O}_2(\text{g}) \rightarrow \text{NO}_2(\text{g}) + \text{H}_2\text{O}(\text{g})$
 A) 3
 B) 6
 C) 7
 D) 12
 E) 14
50. Give (in order) the correct coefficients to balance the following:
 $\text{H}_2\text{SnCl}_6 + \text{H}_2\text{S} \rightarrow \text{SnS}_2 + \text{HCl}$
 A) 1, 2, 1, 6
 B) 1, 2, 2, 2
 C) 1, 1, 1, 6
 D) 6, 2, 1, 1
 E) 2, 4, 2, 6
51. What is the molar mass of $\text{Ca}_3(\text{PO}_4)_2$?
 A) 310.18 g/mol
 B) 87.05 g/mol
 C) 278.18 g/mol
 D) 215.21 g/mol
 E) 166.02 g/mol
52. How many atoms of hydrogen are present in 4.11 g of water?
 A) 1.37×10^{23}
 B) 1.23×10^{24}
 C) 4.95×10^{24}
 D) 2.75×10^{23}
 E) 0.456

53. The forces of attraction that hold a diamond together are called
- electrovalent
 - ionic
 - network covalent
 - London dispersion
 - hydrogen
54. Atoms having greatly differing electronegativities tend to form:
- no bonds
 - polar covalent bonds
 - nonpolar covalent bonds
 - ionic bonds
 - covalent bonds
55. The ability to conduct electricity in the solid state is a characteristic of metallic bonding. *Best* explained by the presence of
- mobile protons
 - high electronegativities
 - mobile electrons
 - high ionization energies
 - immobile protons
56. What is the sum of the coefficients of the following equation when it is balanced using smallest whole number integers?
- $$\text{NaNH}_2 + \text{NaNO}_3 \rightarrow \text{NaN}_3 + \text{NaOH} + \text{NH}_3$$
- 5
 - 6
 - 7
 - 8
 - 9
57. In balancing an equation, we change the _____ to make the number of atoms on each side of the equation balance.
- formulas of compounds in the reactants
 - coefficients of compounds
 - formulas of compounds in the products
 - subscripts of compounds
 - none of these

Select the correct molecular structure from the choices below:

- pyramidal
- none of these
- octahedral
- trigonal planar
- bent

58. BeF_3^- 60. IF_4^- 62. XeF_4
 59. NI_3 61. BeCl_2 63. SiH_4

64. Which of the following bonds is least polar?
- C—O
 - H—C
 - S—Cl
 - Br—Br
 - They are all nonpolar.
65. Which of the following are *true* concerning ionic bonding?
- Ionic bonding occurs between a metal, which has a high affinity for electrons, and a nonmetal, which loses electrons relatively easy.
 - CaCl_2 forms because Ca^{2+} is always a more stable species than the calcium atom alone.
 - Ionic compounds tend to have low melting points.
 - The electronegativity difference between the bonding atoms of ionic compounds is small since the electrons are not shared but rather held together by electrostatic forces.
 - All of the above statements are false.

66. When electrons in a molecule are not found between a pair of atoms but move throughout the molecule, this is called
- ionic bonding.
 - covalent bonding.
 - polar covalent bonding.
 - delocalization of the electrons.
 - a dipole moment.
67. Which of the following bonds would be the most polar without being considered ionic?
- Mg-O
 - C-O
 - O-O
 - Si-O
 - N-O
68. Which atoms are *most* likely to form covalent bonds?
- non-metal atoms that share protons
 - non-metal atoms that share electrons
 - metal atoms that share protons
 - metal atoms that share electrons
 - metal and non-metals atoms sharing electrons
69. Determine the coefficient for O_2 when the following equation is balanced in standard form (smallest whole number integers)
- $$\text{C}_4\text{H}_{10}(\text{g}) + \text{O}_2(\text{g}) \rightarrow \text{CO}_2(\text{g}) + \text{H}_2\text{O}(\text{g})$$
- 4
 - 8
 - 10
 - 13
 - 20
70. An element with an electronegativity of 0.9 bonds with an element with an electronegativity of 3.1. Which of the following phrases *best* describes the bond between these elements?
- Mostly covalent, and formed between a metal and a non-metal
 - Mostly covalent, formed between two non-metals
 - Mostly ionic, formed between metal and a non-metal
 - Mostly ionic, formed between two non-metals
 - Mostly metallic, formed between two metals

Answers *Have not been checked! Tell me if you see typos!*

1) C	2) D	3) B	4) A	5) D	6) A
7) B	8) C	9) A	10) D	11) A	12) D
13) E	14) D	15) B	16) B	17) E	18) C
19) B	20) C	21) E	22) B	23) A	24) E
25) C	26) B	27) B	28) B	29) D	30) D
31) C	32) E	33) A	34) B	35) E	36) A
37) B	38) D	39) B	40) B	41) C	42) A
43) D	44) E	45) B	46) C	47) A	48) D
49) C	50) A	51) A	52) D	53) C	54) D
55) C	56) E	57) B	58) D	59) A	60) B
61) B	62) B	63) B	64) D	65) E	66) D
67) D	68) B	69) D	70) C		