Name: _____ Date: _____

Honors Chemistry Test - Units 4 & 5

____ 1. True or false? The greater the difference in electronegativity between two bonded atoms, the more polar the bond.
A) True B) False

____ 2. Which of the following bonds would be the most polar without being considered ionic?
A) Mg-O B) C-O C) O-O D) Si-O E) N-O

____ 3. Which of the following has nonpolar bonds?
A) H_2S
B) HCl
C) Br_2
D) OF_2
E) All are nonpolar.

____ 4. Order the following bonds from the **least polar to the most polar**.
N–O, Ca–O, C–O, O–O, Ni–O
A) O–O < N–O < C–O < Ca–O < Ni–O
B) O–O < C–O < N–O < Ni–O < Ca–O
C) Ca–O < Ni–O < C–O < N–O < O–O
D) O–O < N–O < C–O < Ni–O < Ca–O
E) Ni–O < Ca–O < C–O < N–O < O–O

____ 5. The element in period 2 with the largest atomic radius is
A) a halogen
B) a noble gas
C) an alkali metal
D) an alkaline earth metal

____ 6. Which sequence of atomic numbers represents elements which have similar chemical properties?
A) 19, 23, 30, 36 B) 9, 16, 33, 50 C) 3, 12, 21, 40 D) 4, 20, 38, 88

____ 7. All of the atoms of the elements in Period 2 have the same number of
A) protons
B) neutrons
C) valence electrons
D) occupied energy levels

____ 8. In which classification is an element placed if the outermost 3 sublevels of its atoms have a ground state electron configuration of $3p^6\ 4s^2\ 3d^5$?
A) alkaline earth metals
B) transition metals
C) metalloids
D) nonmetals

____ 9. Low ionization energies are most characteristic of atoms that are
A) metals B) nonmetals C) metalloids D) noble gases

____ 10. In a given period of the Periodic Table, the element with the lowest first ionization energy is always in
A) Group 1 B) Group 2 C) Group 17 D) Group 18

____ 11. As the atoms of the elements in Group 1 are considered in order from top to bottom, compared to the ionization energy of the atom above it, the ionization energy of each successive atom
A) decreases
B) increaes
C) remains the same
D) changes unpredictably

____ 12. Which of these metals loses electrons most readily?
A) calcium B) magnesium C) potassium D) sodium

____ 13. Which sequence correctly places the elements in order of increasing ionization energy?
A) H → Li → Na → K
B) I → Br → Cl → F
C) O → S → Se → Te
D) H → Be → Al → Ga

____ 14. Which atom has the strongest attraction for electrons?
A) Cl B) F C) Br D) I

____ 15. As the elements in Group 1 are considered in order of increasing atomic number, the atomic radius or each successive element increases. This is primarily due to an increase in the number of
A) neutrons in the nucleus
B) electrons in the outermost energy level
C) unpaired electrons
D) principal energy levels

____ 16. When a sodium atom becomes an ion the size of the atom
A) decreases by gaining an electron
B) decreases by losing an electron
C) increases by gaining an electron
D) increases by losing an electron

____ 17. Which element has an atomic radius that is greater than its ionic radius?
A) S B) K C) F D) O

____ 18. Elements that readily gain electrons tend to have
A) high ionization energy and high electronegativity
B) high ionization energy and low electronegativity
C) low ionization energy and high electronegativity
D) low ionization energy and low electronegativity

____ 19. Which element in Period 3 has the greatest tendency to gain electrons?
A) Na B) Si C) Cl D) Ar

____ 20. Which sequence of elements is arranged in order of decreasing atomic radii?
A) Al, Si, P B) Li, Na, K C) Cl, Br, I D) N, C, B

____ 21. Within Period 2 of the Periodic Table, as the atomic number increases, the atomic radius generally
A) decreases
B) increases
C) remains the same
D) changes unpredictably

____ 22. The correct formula for iron(III) phosphide is
A) Fe_3P_2 B) FeP C) Fe_3P D) FeP_3 E) Fe_2P_3

____ 23. The correct formula for sodium sulfide is
A) Na_2S B) NaS_2 C) NaS D) Na_3S E) SSu

____ 24. The correct formula for carbon monoxide is
A) CO_2 B) CO C) C_2O D) $CMnO_2$ E) CH_4

____ 25. What is the formula for potassium carbonate?
A) P_2CO_3 B) PCO_3 C) K_2CO_3 D) KCO_3 E) $K(CO_3)_2$

____ 26. The correct formula for lead(II) sulfite is
A) $PbSO_3$ B) $PbSO_4$ C) LSO_4 D) L_2SO_4 E) Pb_2SO_3

____ 27. What is the correct formula for lithium phosphate?
A) LPO_3 B) $LiPO_4$ C) Li_3PO_4 D) LP_4 E) $Li(PO_4)_3$

____ 28. The correct formula for iron(III) hydroxide is
A) $Fe(OH)_3$ B) Fe_3OH C) $Fe_2(OH)_3$ D) $Fe_3(OH)_2$ E) $Fe_3(OH)_3$

____ 29. The correct formula for ammonium dichromate is
A) $(NH_4)_2CrO_4$
B) NH_4CrO_4
C) $NH_4(CrO_4)_2$
D) $NH_4(Cr_2O_7)_2$
E) $(NH_4)_2Cr_2O_7$

____ 30. What is the formula for calcium hydroxide?
A) CaOH
B) $Ca(OH)_2$
C) $Ca(OH)_3$
D) $Ca_2(OH)_3$
E) none of these

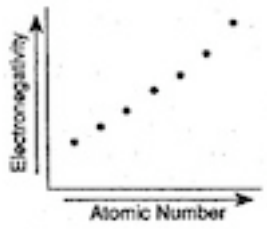
31. Write the correct formula for calcium hydrogen carbonate.

32. Write the correct formula for ammonium dichromate.

33. Write the correct formula for dinitrogen pentoxide.
34. Write the correct formula for sodium hydride.
35. Write the correct formula for iron(III) sulfide.
36. Give the formula for iron(III) oxide.
37. Give the formula for barium phosphate.
38. Give the formula for dinitrogen pentoxide.
39. Give the formula for cobalt(II) nitrate.
40. Give the formula for lithium sulfide.
41. Give the formula for sulfur dioxide.
42. Give the formula for dinitrogen tetroxide.
43. Give the formula for magnesium phosphate.
44. Give the formula for sodium hydroxide.
45. Give the formula for silicon tetrafluoride.
46. Give the name for $LiC_2H_3O_2$.
47. Give the name for K_2CO_3.
48. Give the name for $Fe(OH)_3$.
49. Give the name for CO_2.
50. Give the name for $Al(OH)_3$.
51. Give the name for SnS_2.
52. Give the formula for dinitrogen monoxide.
53. Give the formula for carbon monoxide.
54. Give the name for SiO_2.
55. Give the name for K_2S.

____ 56. Which diagram correctly shows the relationship between electronegativity and atomic number for the elements of Period 3?

(A)



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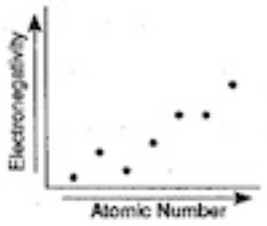

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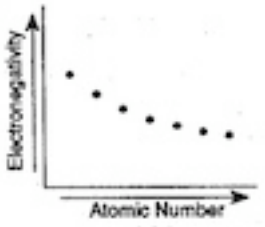

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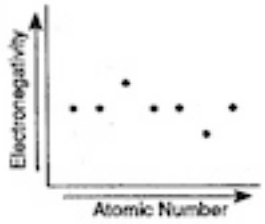

A) B) C) D)

Answer Key - H_Practice Test Unit 4&5

1. True
2. D
3. C
4. D
5. C
6. D
7. C
8. B
9. A
10. A
11. A
12. C
13. B
14. B
15. D
16. B
17. B
18. A
19. C
20. A
21. A
22. B
23. A
24. B
25. C
26. A
27. C
28. A
29. E
30. B
31. $Ca(HCO_3)_2$
32. $(NH_4)_2Cr_2O_7$
33. N_2O_5
34. NaH
35. Fe_2S_3
36. Fe_2O_3
37. $Ba_3(PO_4)_2$
38. N_2O_5
39. $Co(NO_3)_2$
40. Li_2S
41. SO_2
42. N_2O_4
43. $Mg_3(PO_4)_2$

44. NaOH
45. SiF_4
46. lithium acetate
47. potassium carbonate
48. iron(III) hydroxide
49. carbon dioxide
50. aluminum hydroxide
51. tin(IV) sulfide
52. N_2O
53. CO
54. silicon dioxide
55. potassium sulfide
56. A