

Pre-AP Chemistry  
Midterm Review

NAME: \_\_\_\_\_  
DATE: \_\_\_\_\_

1. Chemical-
2. Inorganic chemistry-
3. biochemistry-
4. organic chemistry-
5. extensive property-
6. intensive property-
7. ATOM-
8. compound-
9. quantity of matter-
10. matter-
11. physical change
12. chemical change
13. noble gases are \_\_\_\_\_
14. reactants vs products
15. solid
16. liquid
17. gas
18. mixture-
19. homogeneous mixture
20. heterogeneous mixture
21. Vertical columns are also known as:
22. horizontal columns are also known as:
23. A nonmetal is:
24. A metal is:
25. Semiconductors= \_\_\_\_\_
26. Scientific Method steps:
27. Quantitative vs qualitative measurements
28. Hypothesis:
29. SI base units for mass, time, and length
30. The symbol km, sec, mm, cm, m stand for:
31. List from small to large: mm, cm, m, km
32. m vs m<sup>2</sup> vs m<sup>3</sup> measure what?
33. Liter=
34. 1 mm =
35. mass vs weight
36. DENSITY =
37. be able to do density problems (to find density, mass, or volume)

38. What are the units for density:
39. Metric conversion (KHD DCM)
40. How many seconds are in 30 days?
41. Precision
42. Accuracy
43. SIGNIFICANT FIGURES:
  - a. 0.00333 g
  - b. 2.22200 g
  - c. 1.000111 g
  - d. 200000 g
44. Give the following measurements to the correct number of significant figures:
  - a.  $2.00 \text{ L} \times 4.44 \text{ L} =$
  - b.  $3.22 \text{ L} \times 1.0 \text{ L} =$
  - c.  $22.1 \text{ L} \times .0042 \text{ L} =$
45. Write the following in scientific notation:
  - a. 444,000,000 cm
  - b. 0.0009876 cm
46. A direct proportional relationship of two variables will give a \_\_\_\_\_ line.
47. An inverse proportional relationship of two variables will give a \_\_\_\_\_ line.
48. Dalton's Atomic Theory said atoms were \_\_\_\_\_.
49. Law of \_\_\_\_\_ proportions says  $\text{NO}$ ,  $\text{NO}_2$ ,  $\text{N}_2\text{O}$ ,  $\text{N}_2\text{O}_3$  can all combine in whole-number ratios.
50. Anode has a \_\_\_\_\_ charge while a cathode has a \_\_\_\_\_ charge.
51. What is a CRT? What was it used to discover? Who?
52. Know the gist Rutherford's Experiment
53. What is the charge of the nucleus?
54. Neutral particle with the same mass as a proton = \_\_\_\_\_
55. Particles that have  $1/2000$  the mass of a proton = \_\_\_\_\_
56. Electrically neutral atoms have the same number of \_\_\_\_\_ and \_\_\_\_\_
57. Isotope =
58. mass number=
59. Atomic number=
60. An atom of Fluorine has how many protons, neutrons, electrons, mass number, atomic number?
61. An ion of Fluorine has how many protons, neutrons, electrons, mass number, atomic number?
62. An isotope of Fluorine-19 has how many protons, neutrons, electrons, mass number, atomic number?
63. Know nuclear symbols of particles:

64. Ultraviolet light, visible light, radio waves and infrared light all have the same \_\_\_\_\_
65. Frequency units= \_\_\_\_\_
66. Longer wavelengths have short \_\_\_\_\_
67. Shorter wavelengths have longer \_\_\_\_\_
68. The distance between two successive peaks on adjacent waves= \_\_\_\_\_
69. Know the wave equation: speed ( $c$ )= \_\_\_\_\_x \_\_\_\_\_
70. Photon= a quantum of \_\_\_\_\_
71. Louis de Broglie theorized electrons could have \_\_\_\_\_ wave-particle nature.
72. How many quantum numbers are needed to describe the location of an electron?
73. Main energy level is identified by the \_\_\_\_\_ quantum number.
74. How many possible spins states are there for an electron in an orbital?
75. Dumbbell shaped \_\_\_\_\_ orbital are along the x, y, and z axis.
76. Shape of the s-orbital is \_\_\_\_\_
77. Which cannot exist? 1s, 1p, 2d, 2s, 3s, 4s, 4p, 3f
78. Know maximum numbers of electrons for the first four energy levels:
79. Know number of orbitals for each sublevel (s,p,d,f):
80. Hund's Rule:
81. Pauli Exclusion Principle:
82. Aufbau Principle:
83. Electron configuration for chlorine= \_\_\_\_\_
84. Mendeleev- arranged by chemical and physical properties
85. Moseley- arranged by increasing atomic number (after Mendeleev)
86. Lanthanides location
87. Actinides location
88. Elements in groups have similar \_\_\_\_\_
89. Most reactive nonmetals are the \_\_\_\_\_
90. First noble gas with an octet is \_\_\_\_\_
91. Alkali metals are \_\_\_\_\_ reactive than alkaline-earth metals.
92. Equation for acquiring an electron and releasing energy:  
\_\_\_\_\_
93. Atomic radius trend:
94. Energy used to remove of an electron= \_\_\_\_\_
95. Electronegativity= \_\_\_\_\_
96. Electron affinity= \_\_\_\_\_
97. Element that is the most electronegative: \_\_\_\_\_
98. Cation= \_\_\_\_\_
99. Anion= \_\_\_\_\_
100. Valence electrons are lost, \_\_\_\_\_, or shared when atoms form compounds.
101. Number of valence shell electrons by group:

102. Electrons involved in the Lewis Dot Structure are the \_\_\_\_\_ electrons
103. Covalently bonded, identical pull= \_\_\_\_\_
104. Covalently bonded, unequal attraction for the electrons= \_\_\_\_\_
105. The greater the electronegativity difference between atoms the more \_\_\_\_\_ the bond is in character.
106. Molecular formula example:
- 107: Formula unit example:
- 108: Lewis Dot structure of water, ammonia, and hydrochloric acid:
109. IONIC COMPOUNDS have an organized CRYSTAL pattern.
110. VSEPR theory predicts shapes of \_\_\_\_\_.
111. Give formula for: Silver nitrate, zinc chloride, calcium oxide, aluminum sulfite
112. Name the compound:  $\text{SO}_3$ ,  $\text{H}_2\text{O}$ ,  $\text{C}_2\text{H}_3$ ,  $\text{HCl}_{(\text{aq})}$ ,  $\text{MgO}$
113. Alpha particle
114. Beta particle
115. Gamma rays are \_\_\_\_\_ waves.
116. Nuclear reactions:
117. Radioactive decay:
118. Half-life problem:
119. Instrument used to detect radiation by counting electric pulses (class demo)
120. Fission-
121. Fusion-

Good Luck!!!!