Chemistry CRT Study Guide First Quarter 2007-08

Number	AL COS #	
1.	#1.0	Classify sodium chloride as an element, mixture, compound, or colloid.
2.	#1.0	Classify air as an element, mixture, compound, or colloid.
3.	#1.0	Classify a blueberry muffin as an element, mixture, compound, or colloid.
4.	#1.0	Classify calcium carbonate as an element, mixture, compound, or colloid.
5.	#1.0	Classify aluminum as an element, mixture, compound, or colloid.
6.	#1.0	Classify carbon as an element, mixture, compound, or colloid.
7.	#1.0	Classify salt water as an element, mixture, compound, or colloid.
8.	#1.0	Classify copper as an element, mixture, compound, or colloid.
9.	#1.0	Classify carbon dioxide as an element, mixture, compound, or colloid.
10.	#1.0	Classify muddy water as an element, mixture, compound, or colloid.
11.	#1.1	Is mass an example of an intensive property or an extensive property?
12.	#1.1	Is boiling point an example of an intensive property or an extensive property?
13.	#1.1	Is density an example of an intensive property or an extensive property?
14.	#1.1	Is weight an example of an intensive property or an extensive property?
15.	#1.1	Is height an example of an intensive property or an extensive property?
16.	#1.1	Is melting point an example of an intensive property or an extensive property?
17.	#1.1	Is freezing point an example of an intensive property or an extensive property?
18.	#1.1	Is width an example of an intensive property or an extensive property?
19.	#1.1	Is volume an example of an intensive property or an extensive property?
20.	#1.1	Is malleability an example of an intensive property or an extensive property?
21.	#1.2	To what category of elements does an element belong if it is a poor conductor of electricity?
22.	#1.2	To what category of elements does an element belong if it is a good conductor of electricity?
23.	#1.2	To what category of elements does an element belong if it is malleable?
24.	#1.2	To what category of elements does an element belong if it is brittle?
25.	#1.2	To what category of elements does an element belong if it tends to gain electrons when forming an ion?
26.	#1.2	To what category of elements does an element belong if it tends to lose electrons when forming an ion?
27.	#1.2	To what category of elements does an element belong if it is ductile?
28.	#1.2	To what category of elements does an element belong if it exhibits luster?
29.	#1.2	To what category of elements does an element belong if it is dull?
30.	#1.2	To what category of elements does an element belong if it is a good conductor of heat?
31.	#1.3	What type of mixture is sand and water?
32.	#1.3	What type of mixture is black coffee?
33.	#1.3	What type of mixture is oil and water?
34.	#1.3	What type of mixture is blood?
35.	#1.3	What type of mixture is a chocolate chip cookie?
36.	#1.3	What type of mixture is a blueberry muffin?
37.	#1.3	What type of mixture is chicken noodle soup?
38.	#1.3	What type of mixture is air?
39.	#1.3	What type of mixture is dirt?
40.	#1.3	What type of mixture is concrete?
41.	#3.0	Given: Li, Rb, K, or Na, which has the largest atomic radius?
42.	#3.0	Given: Li, Rb, K, or Na, which has the smallest atomic radius?
43.	#3.0	Given: K, Cs, As, Br, which has the largest atomic radius?
44.	#3.0	Given: K, Cs, As, Br, which has the smallest atomic radius?
45.	#3.0	Given: K, Cs, As, Br, which has the largest electronegativity?
46.	#3.0	Given: K, Cs, As, Br, which has the smallest electronegativity?
47.	#3.0	Given: Li, Rb, K, Na, which has the smallest electronegativity?
48.	#3.0	Given: Li, Rb, K, Na, which has the largest electronegativity?
49.	#3.0	How many valence electrons does phosphorus have?

50.	#3.0	Given: iodine, helium, sulfur, or hydrogen, which is a halogen?
51.	#3.0	How many valence electrons does Si have?
52.	#3.0	How many valence electrons does Rn have?
53.	#3.0	What factor determines the reactivity of an element?
54.	#3.1	Given: vanadium, bromine, strontium, or neodymium, in which would you find *f* orbitals being filled?
55.	#3.1	Given an orbital diagram be able to determine the element.
56.	#3.1	Given an electron configuration determine what element is represented.
57.	#3.1	What is the correct electron dot structure for sodium?
58.	#3.1	How many electrons can a single orbital hold?
59.	#3.1	Which element's electron configuration ends with $\mathbf{4}\boldsymbol{p}^{\mathbf{2}}$?
60.	#3.1	Which element's electron configuration ends in $\mathbf{6s^2}$?
61.	#3.1	Which element has a noble gas configuration of $\mathbf{[Ne]3s^2 3p^1}$?
62.	#3.1	Which noble gas has **ONLY** two dots in its Lewis dot structure?
63.	#3.1	What is the correct electron dot structure for oxygen?
64.	#3.1	What is the correct electron dot structure for strontium?
65.	#3.2	Calculate the number of protons in boron.
66.	#3.2	Calculate the number of electrons in magnesium.
67.	#3.2	Calculate the number of neutrons in carbon – 14.
68.	#3.2	Calculate the number of protons in potassium-40.
69.	#3.2	Calculate the number of neutrons in potassium-40.
70.	#3.2	Calculate the number of protons in carbon – 14.
71.	#3.2	Calculate the number of protons in oxygen – 17.
72.	#3.2	Calculate the number of neutrons in oxygen – 17.
73.	#3.2	Calculate the number of neutrons in ^{31}P.
74.	#3.2	Calculate the number of neutrons in ^{235}U.
75.	#3.2	Calculate the number of protons in ^{31}P.
76.	#3.2	Calculate the number of protons in ^{235}U.
77.	#3.2	Calculate the number of protons in ^{238}U.
78.	#3.2	Calculate the number of neutrons, protons, and electrons that ^{126}Te has?
79.	#3.2	Which isotope of neon contains the same number of neutrons and protons?
80.	#3.2	Which isotope of oxygen contains the same number of neutrons and protons?
81.	#3.2	Calculate the number of electrons in U-238?
82.	#3.3	Which scientist came up with the atomic theory of matter?
83.	#3.3	Which scientist is famous for his "Oil Drop Experiment"?
84.	#3.3	What Law states that matter is neither created nor destroyed in any process?
85.	#3.3	Thomson used the cathode ray to discover which subatomic particle?
86.	#3.3	What did Rutherford's gold foil experiment show was small, dense, and positively charged?
87.	#3.3	The atomic emission spectrum can be used to identify an element by what physical property?
88.	#3.3	What concept states that all matter is composed of atoms?
89.	#3.3	Who is given credit for the discovery of the electron?
90.	#3.3	Who is given credit for the discovery of the neutron?
91.	#3.3	Who is given credit for the discovery of the proton?
92.	#5.0	What determines the average kinetic energy of the molecules of any gas?
93.	#5.0	What must happen to the kinetic energy of a substance for a liquid to change into a solid?
94.	#5.0	What must happen to the kinetic energy of a substance for a gas to change into a liquid?
95.	#5.0	What must happen to the kinetic energy of a substance for a solid to change into a gas?
96.	#5.0	In which state of matter are the intermolecular forces most attracted to each other?
97.	#5.0	What the state of matter has particles with the least amount of kinetic energy?
98.	#5.0	What state of matter has particles with the greatest amount of kinetic energy?
99.	#5.0	In which state of matter are the intermolecular forces least attracted to each other?
100.	#5.0	What happens to the distance between molecules of a substance when it melts?

101.	#5.0	What happens to the distance between molecules of a substance when it vaporizes?
102.	#5.0	How does the kinetic energy of a hydrogen molecule at 25°C compare to the kinetic energy of an oxygen molecule at 25°C?
103.	#6.1	Predict the type of bond that is formed in the diagram above. $\mathbf{Na^+ + Cl^- \rightarrow NaCl}$
104.	#6.1	Predict the type of bond that is formed in the diagram above. $\mathbf{Cl + Cl \rightarrow Cl_2}$
105.	#6.1	Predict the type of bond that would form between lithium and fluorine.
106.	#6.1	Predict the type of bond that would form between sodium and fluorine.
107.	#6.1	Predict the type of bond that would form between carbon and hydrogen.
108.	#6.1	Predict the type of bond that would form between copper and chlorine.
109.	#6.1	Predict the type of bond formed by the sharing of four electrons.
110.	#6.1	Which diatomic molecule forms a triple covalent bond?
111.	#6.1	Predict the type of bond that would form between sulfur and oxygen.
112.	#6.2	Group 2A elements, alkaline earth metals, tend to form what charge?
113.	#6.2	What would the oxidation number be for the element with the following electron configuration: $\mathbf{1s^2 2s^2 2p^6 3s^2 3p^5}$?
114.	#6.2	What would be the oxidation number for the following element: $\mathbf{1s^2\ 2s^2\ 2p^5}$?
115.	#6.2	What would be the oxidation number for the following element: $\mathbf{[Ar]\ 4s^2}$?
116.	#6.2	Given: nitrogen, sulfur, boron, or chlorine, which would tend to form an ion with a –3 charge?
117.	#6.2	Given: carbon, oxygen, barium, or potassium, which would tend to form an ion with a +2 charge?
118.	#6.2	What is the sum of the oxidation numbers in a neutral compound?
119.	#6.2	What is the charge of the phosphate ion in K_3PO_4?
120.	#6.2	What is the oxidation number of hydrogen in H_2O?
121.	#6.2	What is the oxidation number of the chromate ion in potassium chromate?
122.	#6.2	What is the oxidation number of phosphorus in sodium phosphate?
123.	#6.3	What is the name of $H_2SO_{4\ (aq)}$?
124.	#6.3	What is the formula for aluminum sulfate?
125.	#6.3	What is the formula for copper (II) chloride?
126.	#6.3	What is the correct formula for carbon disulfide?
127.	#6.3	What is the correct name for CCl_4?
128.	#6.3	What is the correct name for $MgSO_3$?
129.	#6.3	What is the formula of calcium phosphate, which is made up of the ions Ca^{2+} and PO_4^{3-} ?
130.	#6.3	What is the correct name for $(NH_4)_3PO_4$?
131.	#6.3	What is the correct name for Li_2CO_3?
132.	#6.3	What is the correct name for NaOH?
133.	#6.3	What is the correct formula for potassium permanganate?
134.	#6.3	What is the correct formula for hydrochloric acid?
135.	#6.3	What is the correct formula for phosphoric acid.?
136.	#8.0	Is burning wood an example of a chemical change or a physical change?
137.	#8.0	Is freezing water an example of a chemical change or a physical change?
138.	#8.0	Is malleability an example of a chemical property or a physical property?
139.	#8.0	Is melting point an example of a chemical property or a physical property?
140.	#8.0	Is "ignites when dropped into water" an example of a chemical property or a physical property?
141.	#8.0	Is conducting electricity an example of a chemical property or a physical property?
142.	#8.0	Is an object's tendency to rust an example of a chemical property or a physical property?
143.	#8.0	Is an object's tendency to tarnish an example of a chemical property or a physical property?
144.	#8.0	Is an object's ductility an example of a chemical property or a physical property?
145.	#8.0	Is an object's luster an example of a chemical property or a physical property?

146.	#9.3	Identify the three main types of radioactivity from the list below.
147.	#9.3	Determine what type of radiation is being given off from a nuclear transition equation.
148.	#9.3	What particle makes up beta radiation?
149.	#9.3	In the equation $^{238}U \rightarrow {}^{234}Th$, what type of radiation is given off?
150.	#9.3	In the equation $^{14}C \rightarrow {}^{14}N$, what type of radiation is given off?
151.	#9.3	What type of radiation is not deflected by electric or magnetic fields?
152.	#9.3	What is the product of all nuclear fission reactions?
153.	#9.3	What condition is required for fusion reactions to occur?
154.	#9.3	What particle does Argon – 39 lose when it decays to potassium – 39?
155.	#9.3	What is a beta particle?
156.	#10.0	What is a control?
157.	#10.0	If you know an object's density, what else do you need to know in order to calculate its mass?
158.	#10.0	What is the density of an object with a mass of 7.5 grams and a volume of 5.0 mL?
159.	#10.0	Which prefix is equivalent to 1000 or 10^3?
160.	#10.0	Which prefix is equivalent to 0.001 or 10^{-3}?
161.	#10.0	What is the SI base unit used to measure the amount of a substance?
162.	#10.0	What is the SI base unit for temperature?
163.	#10.0	According to the rules for significant digits, how many significant digits will be in the answer to the problem **23.32 × 6.59**?
164.	#10.0	Solve the problem **36.28 + 45.7** using the correct number of significant digits.
165.	#10.0	What is the number **1,592,000,000** when written in proper scientific notation?
166.	#10.0	What is the number **3.55×10^{-3}** when written in ordinary notation?