

Chemistry CRT Study Guide First Quarter 2007-08

Number	AL COS #		
1.	#1.0	Classify sodium chloride as an element, mixture, compound, or colloid.	Compound
2.	#1.0	Classify air as an element, mixture, compound, or colloid.	Mixture
3.	#1.0	Classify a blueberry muffin as an element, mixture, compound, or colloid.	Mixture
4.	#1.0	Classify calcium carbonate as an element, mixture, compound, or colloid.	Compound
5.	#1.0	Classify aluminum as an element, mixture, compound, or colloid.	Element
6.	#1.0	Classify carbon as an element, mixture, compound, or colloid.	Element
7.	#1.0	Classify salt water as an element, mixture, compound, or colloid.	Mixture
8.	#1.0	Classify copper as an element, mixture, compound, or colloid.	Element
9.	#1.0	Classify carbon dioxide as an element, mixture, compound, or colloid.	Compound
10.	#1.0	Classify muddy water as an element, mixture, compound, or colloid.	Mixture
11.	#1.1	Is mass an example of an intensive property or an extensive property?	Extensive
12.	#1.1	Is boiling point an example of an intensive property or an extensive property?	Intensive
13.	#1.1	Is density an example of an intensive property or an extensive property?	Intensive
14.	#1.1	Is weight an example of an intensive property or an extensive property?	Extensive
15.	#1.1	Is height an example of an intensive property or an extensive property?	Extensive
16.	#1.1	Is melting point an example of an intensive property or an extensive property?	Intensive
17.	#1.1	Is freezing point an example of an intensive property or an extensive property?	Intensive
18.	#1.1	Is width an example of an intensive property or an extensive property?	Extensive
19.	#1.1	Is volume an example of an intensive property or an extensive property?	Extensive
20.	#1.1	Is malleability an example of an intensive property or an extensive property?	Intensive
21.	#1.2	To what category of elements does an element belong if it is a poor conductor of electricity?	Non metal
22.	#1.2	To what category of elements does an element belong if it is a good conductor of electricity?	Metal
23.	#1.2	To what category of elements does an element belong if it is malleable?	Metal
24.	#1.2	To what category of elements does an element belong if it is brittle?	Non metal
25.	#1.2	To what category of elements does an element belong if it tends to gain electrons when forming an ion?	Non metal
26.	#1.2	To what category of elements does an element belong if it tends to lose electrons when forming an ion?	Metal
27.	#1.2	To what category of elements does an element belong if it is ductile?	Metal
28.	#1.2	To what category of elements does an element belong if it exhibits luster?	Metal
29.	#1.2	To what category of elements does an element belong if it is dull?	Non metal
30.	#1.2	To what category of elements does an element belong if it is a good conductor of heat?	Metal
31.	#1.3	What type of mixture is sand and water?	Heterogeneous
32.	#1.3	What type of mixture is black coffee?	Homogeneous
33.	#1.3	What type of mixture is oil and water?	Heterogeneous
34.	#1.3	What type of mixture is blood?	Heterogeneous
35.	#1.3	What type of mixture is a chocolate chip cookie?	Heterogeneous
36.	#1.3	What type of mixture is a blueberry muffin?	Heterogeneous
37.	#1.3	What type of mixture is chicken noodle soup?	Heterogeneous
38.	#1.3	What type of mixture is air?	Homogeneous
39.	#1.3	What type of mixture is dirt?	Heterogeneous

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40.	#1.3	What type of mixture is concrete?	Heterogeneous
41.	#3.0	Given: Li, Rb, K, or Na, which has the largest atomic radius?	Rb
42.	#3.0	Given: Li, Rb, K, or Na, which has the smallest atomic radius?	Li
43.	#3.0	Given: K, Cs, As, Br, which has the largest atomic radius?	Cs
44.	#3.0	Given: K, Cs, As, Br, which has the smallest atomic radius?	Br
45.	#3.0	Given: K, Cs, As, Br, which has the largest electronegativity?	Br
46.	#3.0	Given: K, Cs, As, Br, which has the smallest electronegativity?	Cs
47.	#3.0	Given: Li, Rb, K, Na, which has the smallest electronegativity?	Rb
48.	#3.0	Given: Li, Rb, K, Na, which has the largest electronegativity?	Li
49.	#3.0	How many valence electrons does phosphorus have?	5
50.	#3.0	Given: iodine, helium, sulfur, or hydrogen, which is a halogen?	Iodine
51.	#3.0	How many valence electrons does Si have?	4
52.	#3.0	How many valence electrons does Rn have?	8
53.	#3.0	What factor determines the reactivity of an element?	Valence electrons
54.	#3.1	Given: vanadium, bromine, strontium, or neodymium, in which would you find <i>f</i> orbitals being filled?	Neodymium
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?	Na with 1 dot
58.	#3.1	How many electrons can a single orbital hold?	2
59.	#3.1	Which element's electron configuration ends with $4p^2$?	Germanium
60.	#3.1	Which element's electron configuration ends in $6s^2$?	Barium
61.	#3.1	Which element has a noble gas configuration of $[\text{Ne}]3s^23p^1$?	Aluminum
62.	#3.1	Which noble gas has ONLY two dots in its Lewis dot structure?	Helium
63.	#3.1	What is the correct electron dot structure for oxygen?	O with 6 dots
64.	#3.1	What is the correct electron dot structure for strontium?	Sr with 2 dots
65.	#3.2	Calculate the number of protons in boron.	5
66.	#3.2	Calculate the number of electrons in magnesium.	12
67.	#3.2	Calculate the number of neutrons in carbon – 14.	8
68.	#3.2	Calculate the number of protons in potassium-40.	19
69.	#3.2	Calculate the number of neutrons in potassium-40.	21
70.	#3.2	Calculate the number of protons in carbon – 14.	6
71.	#3.2	Calculate the number of protons in oxygen – 17.	8
72.	#3.2	Calculate the number of neutrons in oxygen – 17.	9
73.	#3.2	Calculate the number of neutrons in ^{31}P .	16
74.	#3.2	Calculate the number of neutrons in ^{235}U .	143
75.	#3.2	Calculate the number of protons in ^{31}P .	15
76.	#3.2	Calculate the number of protons in ^{235}U .	92
77.	#3.2	Calculate the number of protons in ^{238}U .	92
78.	#3.2	Calculate the number of neutrons, protons, and electrons that ^{126}Te has?	74 neutrons, 52 protons, 52 electrons
79.	#3.2	Which isotope of neon contains the same number of neutrons and protons?	^{20}Ne
80.	#3.2	Which isotope of oxygen contains the same number of neutrons and protons?	O-16
81.	#3.2	Calculate the number of electrons in U-238?	92
82.	#3.3	Which scientist came up with the atomic theory of matter?	Dalton
83.	#3.3	Which scientist is famous for his "Oil Drop Experiment"?	Millikan
84.	#3.3	What Law states that matter is neither created nor destroyed in any process?	Law of Conservation of Mass
85.	#3.3	Thomson used the cathode ray to discover which subatomic particle?	Electrons

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86.	#3.3	What did Rutherford's gold foil experiment show was small, dense, and positively charged?	Nucleus
87.	#3.3	The atomic emission spectrum can be used to identify an element by what physical property?	Color
88.	#3.3	What concept states that all matter is composed of atoms?	Dalton's Atomic Theory
89.	#3.3	Who is given credit for the discovery of the electron?	Thomson
90.	#3.3	Who is given credit for the discovery of the neutron?	Chadwick
91.	#3.3	Who is given credit for the discovery of the proton?	Rutherford
92.	#5.0	What determines the average kinetic energy of the molecules of any gas?	Temperature
93.	#5.0	What must happen to the kinetic energy of a substance for a liquid to change into a solid?	Decrease
94.	#5.0	What must happen to the kinetic energy of a substance for a gas to change into a liquid?	Decrease
95.	#5.0	What must happen to the kinetic energy of a substance for a solid to change into a gas?	Increase
96.	#5.0	In which state of matter are the intermolecular forces most attracted to each other?	Solid
97.	#5.0	What the state of matter has particles with the least amount of kinetic energy?	Solid
98.	#5.0	What state of matter has particles with the greatest amount of kinetic energy?	Gas
99.	#5.0	In which state of matter are the intermolecular forces least attracted to each other?	Gas
100.	#5.0	What happens to the distance between molecules of a substance when it melts?	It increases
101.	#5.0	What happens to the distance between molecules of a substance when it vaporizes?	It increases
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?	The kinetic energy is the same
103.	#6.1	Predict the type of bond that is formed in the diagram above. $\text{Na}^+ + \text{Cl}^- \rightarrow \text{NaCl}$	Ionic
104.	#6.1	Predict the type of bond that is formed in the diagram above. $\text{Cl} + \text{Cl} \rightarrow \text{Cl}_2$	Covalent
105.	#6.1	Predict the type of bond that would form between lithium and fluorine.	Ionic
106.	#6.1	Predict the type of bond that would form between sodium and fluorine.	Ionic
107.	#6.1	Predict the type of bond that would form between carbon and hydrogen.	Covalent
108.	#6.1	Predict the type of bond that would form between copper and chlorine.	Ionic
109.	#6.1	Predict the type of bond formed by the sharing of four electrons.	Double covalent bond
110.	#6.1	Which diatomic molecule forms a triple covalent bond?	Nitrogen
111.	#6.1	Predict the type of bond that would form between sulfur and oxygen.	Covalent bond
112.	#6.2	Group 2A elements, alkaline earth metals, tend to form what charge?	2+
113.	#6.2	What would the oxidation number be for the element with the following electron configuration: $1s^2 2s^2 2p^6 3s^2 3p^5$?	-1
114.	#6.2	What would be the oxidation number for the following element: $1s^2 2s^2 2p^5$?	-1
115.	#6.2	What would be the oxidation number for the following element: $[\text{Ar}] 4s^2$?	+2
116.	#6.2	Given: nitrogen, sulfur, boron, or chlorine, which would tend to form an ion with a -3 charge?	Nitrogen

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117.	#6.2	Given: carbon, oxygen, barium, or potassium, which would tend to form an ion with a +2 charge?	Barium
118.	#6.2	What is the sum of the oxidation numbers in a neutral compound?	Zero
119.	#6.2	What is the charge of the phosphate ion in K_3PO_4 ?	-3
120.	#6.2	What is the oxidation number of hydrogen in H_2O ?	+1
121.	#6.2	What is the oxidation number of the chromate ion in potassium chromate?	-2
122.	#6.2	What is the oxidation number of phosphorus in sodium phosphate?	+5
123.	#6.3	What is the name of H_2SO_4 (aq)?	Sulfuric acid
124.	#6.3	What is the formula for aluminum sulfate?	$Al_2(SO_4)_3$
125.	#6.3	What is the formula for copper (II) chloride?	$CuCl_2$
126.	#6.3	What is the correct formula for carbon disulfide?	CS_2
127.	#6.3	What is the correct name for CCl_4 ?	Carbon tetrachloride
128.	#6.3	What is the correct name for $MgSO_3$?	Magnesium sulfite
129.	#6.3	What is the formula of calcium phosphate, which is made up of the ions Ca^{2+} and PO_4^{3-} ?	$Ca_3(PO_4)_2$
130.	#6.3	What is the correct name for $(NH_4)_3PO_4$?	Ammonium phosphate
131.	#6.3	What is the correct name for Li_2CO_3 ?	Lithium carbonate
132.	#6.3	What is the correct name for $NaOH$?	Sodium hydroxide
133.	#6.3	What is the correct formula for potassium permanganate?	$KMnO_4$
134.	#6.3	What is the correct formula for hydrochloric acid?	HCl
135.	#6.3	What is the correct formula for phosphoric acid.?	H_3PO_4
136.	#8.0	Is burning wood an example of a chemical change or a physical change?	Chemical change
137.	#8.0	Is freezing water an example of a chemical change or a physical change?	Physical change
138.	#8.0	Is malleability an example of a chemical property or a physical property?	Physical property
139.	#8.0	Is melting point an example of a chemical property or a physical property?	Physical property
140.	#8.0	Is "ignites when dropped into water" an example of a chemical property or a physical property?	Chemical property
141.	#8.0	Is conducting electricity an example of a chemical property or a physical property?	Physical property
142.	#8.0	Is an object's tendency to rust an example of a chemical property or a physical property?	Chemical property
143.	#8.0	Is an object's tendency to tarnish an example of a chemical property or a physical property?	Chemical property
144.	#8.0	Is an object's ductility an example of a chemical property or a physical property?	Physical property
145.	#8.0	Is an object's luster an example of a chemical property or a physical property?	Physical property
146.	#9.3	Identify the three main types of radioactivity from the list below.	Alpha particles, beta particles, and gamma rays
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?	Electron
149.	#9.3	In the equation $^{238}U \rightarrow ^{234}Th$, what type of radiation is given off?	Alpha
150.	#9.3	In the equation $^{14}C \rightarrow ^{14}N$, what type of radiation is given off?	Beta
151.	#9.3	What type of radiation is not deflected by electric or magnetic fields?	Gamma rays
152.	#9.3	What is the product of all nuclear fission reactions?	Energy
153.	#9.3	What condition is required for fusion reactions to occur?	Incredibly high temperatures
154.	#9.3	What particle does Argon – 39 lose when it decays to potassium – 39?	Electron
155.	#9.3	What is a beta particle?	Electron

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156.	#10.0	What is a control?	Standard for comparison
157.	#10.0	If you know an object's density, what else do you need to know in order to calculate its mass?	Volume
158.	#10.0	What is the density of an object with a mass of 7.5 grams and a volume of 5.0 mL?	1.5 g/mL
159.	#10.0	Which prefix is equivalent to 1000 or 10^3 ?	Kilo
160.	#10.0	Which prefix is equivalent to 0.001 or 10^{-3} ?	Milli
161.	#10.0	What is the SI base unit used to measure the amount of a substance?	Mole
162.	#10.0	What is the SI base unit for temperature?	Kelvin (K)
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 ?	3
164.	#10.0	Solve the problem $36.28 + 45.7$ using the correct number of significant digits.	82.0
165.	#10.0	What is the number 1,592,000,000 when written in proper scientific notation?	1.592×10^9
166.	#10.0	What is the number 3.55×10^{-3} when written in ordinary notation?	0.00355