Q2-Summary- Qs. Bank

Modified True/False

Indicate whether the statement is true or false. If false, change the identified word or phrase to make the statement true.

 1.	The higher the frequency of electromagnetic radiation, the lower its wavelength.
 2.	In moving from a lower energy level to a higher energy level in an atom, an electron <u>emits</u> energy.
 3.	The designations used to represent electron energy sublevels in an atom are $\underline{a, b, c}$, and \underline{d} .
 4.	The 1 <i>s</i> orbital is <u>farther from</u> the nucleus than is the 2 <i>s</i> sublevel.
 5.	The maximum number of electrons in any <i>p</i> sublevel is <u>six</u> .
 6.	The three p orbitals in an energy level are arranged <u>at right angles</u> to each other.
 7.	The maximum number of electrons in any <i>f</i> sublevel is <u>18</u> .
 8.	The symbol [He] stands for the electron configuration <u>1s22s22p6</u> .
 9.	The configuration [He] $2s^22p^4$ is an abbreviated form of the configuration <u>1s22s22p4</u> .
 10.	In general, the closer an orbital is to the nucleus, the <u>more</u> energy an electron possesses.
 11.	When an electron absorbs a specific amount of energy, the electron can jump to a higher energy level.
 12.	The results of Rutherford's gold foil experiment suggested that most of an atom is solid.
 13.	Cesium is an example of an element with a <u>high</u> electronegativity.
 14.	A bond formed between two atoms with an electronegativity difference of 0.7 is likely to be a <u>nonpolar</u> covalent bond.
 15.	All triatomic molecules are linear.
 16.	The geometry of alkene molecules is rigid because of the presence of a <u>double</u> bond.
 17.	A <u>nonpolar</u> molecule may contain polar covalent bonds
 18.	A dipole interaction takes place when the positive end of one polar molecule attracts the <u>positive</u> end of a second polar molecule.
 19.	In general, the boiling point of a polar liquid is likely to be <u>higher</u> than the boiling point of a nonpolar liquid of about the same mass.
 20.	In general, the vast majority of ionic compounds are liquids at room temperature.

Multiple Choice *Identify the choice that best completes the statement or answers the question.*

 21.	If a wave has a high frequency, it also has	·	
	a. high wavelength and high energy	с.	low wavelength and high energy
22	b. high wavelength and low energy	a.	low wavelength and low energy
 22.	Light is released when an electron moves from e_{1}	higi	her energy levels to a lower energy level. The resulting
	a absorption	C	excitation
	b. emission	d.	lower energy
23	Electron 1 falls from energy level four to energy	v le	vel two Electron 2 falls from energy level three to energy
 20.	level two. Which electron is more likely to emi	t rec	l light?
	a. 1	c.	Neither electron could emit red light.
	b. 2	d.	Both electrons emit red light.
 24.	Which of the following is the best evidence for	the	existence of sublevels?
	a. large gaps in a spectrum	c.	all colors of light in a spectrum
	b. only four lines in a spectrum	d.	closely spaced lines in a spectrum
 25.	If an atom contains six energy levels, how man	y su	blevels does it contain?
	a. one	с. а	four
26		a.	SIX
 26.	which of the following orbitals is closest to the	nuc	As
	a. 1s b. $2n$	c. d	45 3d
27	Compare the maximum number of electrons po	u. ccih	le in sublevel 3 <i>d</i> with the maximum number that could be
 21.	in sublevel 4d	5510	ie in sublever 5 <i>a</i> with the maximum number that could be
	a. They are the same.	c.	There are more in 4 <i>d</i> .
	b. There are more in $3d$.	d.	They are impossible to compare.
 28.	A p orbital has a shape.		
	a. spherical	c.	dumbbell
	b. doughnut	d.	circular
 29.	An atom is in Group 2, Period 3. How many ele	ectro	ons does the atom contain?
	a. 2	c.	6
	b. 3	d.	12
 30.	Which is a possible last sublevel for an element 2^{6}	fou	ind in Group 18?
	a. $3p^2$	с. а	$4p^{*}$
21	D. 45	u.	4a
 51.	An element is most likely to have properties sin	mia	a poble gas
	b another element in the same group	c. d	a transition element
32	Transition elements have final electrons in the	u.	sublevel
 52.	a. s	с.	d
	b. <i>p</i>	d.	f f
33.	What are the valence electrons in the electron c	onfi	guration of tin. [Kr] $4d^{10}5s^25p^2$?
	a. [Kr]	c.	$5s^25p^2$
	b. $4d^{10}$	d.	$5p^2$
 34.	What is the highest occupied sublevel in the str	uctu	re of an atom of arsenic?
	a. 3 <i>s</i>	c.	3 <i>d</i>
	b. 3 <i>p</i>	d.	4p

 35.	The conclusion that it's impossible to measure accurately both the position and the energy of an electron at the					
	same time was made by					
	a. Bohr	c.	Heisenberg			
	b. Dalton	d.	Proust			
 36.	Each row in the periodic table ends with a	·				
	a. metal	c.	metalloid			
	b. nonmetal	d.	noble gas			
 37.	In going from left to right in any given row in	the p	periodic table, the size of atoms generally			
	a. increases	c.	stays the same			
	b. decreases	d.	changes randomly			
 38.	Compared to the neutral atom from which it is	deri	ved, a negative ion is			
	a. always larger					
	b. always smaller					
c. larger in some cases and smaller in others						
•	d. the same size					
 39.	The valence configuration shared by carbon, si $1^{2}2^{2}2^{2}$	lico	n, and germanium is			
	a. $1s^2 2s^2 2p^2$	С.	$s^{-}p^{-}_{24}$			
10	$b. 2s 2p^{2}$	a. 	s p			
 40.	When compared to the main group metals, trar	1S1t10	on metals have melting and boiling points that are			
	a. always lower	С.	about the same			
4.1	b. usually nigher	a.	usually lower			
 41.	Transition elements, such as chromium, are lik	ely 1	to have			
	a. an oxidation number of 1+	С.	multiple oxidation numbers			
10	b. an oxidation number of 2+	a.	a negative oxidation number			
 42.	The most important alloy of zinc contains copp	per a	nd is called			
	a. steel b. zine ovide	c.	orass			
40		u.				
 43.	Active metals are in the region of the pe	er100	ic table.			
	a. s	C.	d f			
4.4	$\begin{array}{c} 0, \ \mathbf{p} \\ \mathbf{A} = \mathbf{a} \mathbf{b} \mathbf{a} \mathbf{b} \mathbf{a} \mathbf{b} \mathbf{c} \mathbf{a} \mathbf{b} \mathbf{c} \mathbf{c} \mathbf{c} \mathbf{c} \mathbf{c} \mathbf{c} \mathbf{c} c$	u.	J			
 44.	A metallic ion is its corresponding atom	1.	the same size of			
	a. Taiget than	с. d	impossible to compare with			
15	Dramina is a trainal nonmatal. A bramida isa	u.	a brancing store			
 45.	Bromine is a typical nonmetal. A bromide ion	18	a d bromine atom.			
	a. Taiget than	c. d	impossible to compare with			
16	Lonia radii down a grown in the periodia	u.				
 46.	ionic radii down a group in the periodic	tabl	e.			
	a. Increase	C.	follow no pattern			
17	Alkaling ageth matals loss algotrong to a	u.	we the electron configuration of the noble gas in the			
 47.	Alkaline earth metals lose elections to a	cine	we the electron configuration of the noble gas in the			
	a ope	C	six			
	h two	d.	seven			
19	Allows of magnesium are commonly used been	u.	thay are			
 40.	a heavy and strong	c c	lightweight and strong			
	h strong and rigid	d.	reactive			
40	Diants need the elizating conth element	u.	ntosynthosis			
 49.	r rants need the arkanne earth element If	r buo	strontium			
	a. magnosium	υ.	Suomum			

	b. calcium	d.	barium
50.	Group 13 elements tend to form .		
	a. ionic compounds	c.	alloys
	b. covalent compounds	d.	metalloids
51.	The most important use of lead is in .		
	a. solder	c.	batteries
	b. pewter	d.	paint pigment
52.	The most unreactive group of elements is the		
	a. halogens	c.	alkali metals
	b. noble gases	d.	transition elements
 53.	In general, main group elements have m	eltin	ng points and boiling points when compared with transition
	metals.		
	a. higher	c.	much lower
	b. slightly lower	d.	the same
 54.	Most transition metals have oxidation st	ate(s	5).
	a. no	c.	two
	b. only one	d.	multiple
 55.	Transition metals have multiple oxidation state	s be	cause of the involvement of the electrons in
	chemical bonding.		
	a. s	c.	d
	b. <i>p</i>	d.	f
 56.	Because transition metals have similar atomic r	adii	, transition metals have chemical properties.
	a. similar	c.	definitely different
	b. no	d.	identical
 57.	Because of its ability to bond with oxygen,	i	s an essential element in the hemoglobin in blood.
	a. tin	c.	copper
	b. iron	d.	manganese
 58.	Which of the following elements is not in the in	on t	riad?
	a. cobalt	c.	nickel
	b. copper	d.	iron
 59.	Which of the following elements is not a coina	ge n	netal?
	a. copper	c.	platinum
	b. gold	d.	silver
 60.	The inner transition elements are found in the _		_ block of the periodic table.
	a. <i>s</i>	c.	d
	b. <i>p</i>	d.	f

Matching

Match each statement with the correct item below.

- d. lanthanide or actinide
- a. *s*, *p*, *d*, or *f* within an energy levelb. can hold a maximum of two electrons
- e. discovery led to electron cloud model

- c. $1s^2 2s^2 2p^6 3s^2 3p^6$
 - 1*s*²2*s*²2*p*°3*s*²3*p*°
- _____ 61. electron configuration
- 62. Heisenberg uncertainty principle
- _____ 63. sublevel

Match each item with the correct statement below.

- a. alkali metal
- b. alkaline earth metal
- c. halogen
- _____ 64. Fluorine, bromine, or iodine
- _____ 65. An element found in Group 17
- _____ 66. Magnesium or barium
- _____ 67. In compounds, has an oxidation number of 1+
- _____ 68. Is denser and harder than its alkali neighbor
- _____ 69. Strontium, which is identified by the red color of fireworks

Match each item with the correct statement below.

- a. metallic bond
- b. covalent bond
- c. ionic bond
- _____ 70. A material used in making electrical transmission wires
- _____ 71. A material used as a lubricating oil
- _____ 72. A material used in the manufacture of wires in suspension bridges
- _____ 73. A material used as a gaseous propellant in spray cans, such as deodorant or shaving cream dispensers
- _____ 74. A material that evaporates readily at room temperature
- _____ 75. A material that is a good conductor when melted but a poor conductor when solid

The line in Figure 9-1 represents the range of differences in electronegativity that are possible between any two elements in the periodic table. The smallest difference is represented by the left end of the line, and the greatest difference by the right end of the line. In the space provided, write the letter of the labeled parts from this line that corresponds to the descriptions. Some of the letters may be used more than once.



Figure 9-1

- _____ 76. The bond of greatest possible ionic character
- ____ 77. A polar covalent bond
- _____ 78. The division between ionic and polar covalent bonds

Match each item with the correct statement below.

a.	absolute zero	h.	joule (J)
b.	condensation	i.	kinetic theory
c.	crystal lattice	j.	plasma
d.	diffusion	k.	pressure
e.	freezing point	1.	sublimation
f.	gas	m.	temperature
g.	heat of fusion	n.	volatile

- 79. The temperature at which the particles of a substance would have no kinetic energy is called _____.
- 80. Matter in the _____ state has neither definite volume nor definite shape.
- _____ 81. _____ is the force acting on a unit area of surface.
- _____ 82. The process by which particles spread out and fill a space because of random motion is called _____.

Match each statement with the correct item below.

- a. absolute zero
- b. flows but has definite volume
- c. boiling point of water = 100 degrees
- d. states that submicroscopic particles are in constant, random motion
- e. formation of dew on grass in the morning
- f. for example, 3.34×10^5 J/kg for water
- g. state of matter that is easily compressible
- h. for water, 0°C
- i. ice directly to water vapor, for example
- j. increased kinetic energy of particles
- k. striking of particles that involves no loss of energy
- 1. exists on the sun and in fluorescent lights
- m. occurs only at the surface of a liquid
- n. spreading process due to random motion
- o. candle wax or glass, for example
- p. determined by temperature, surface area, nature of liquid, humidity
- q. vapor pressure = atmospheric pressure
- r. normally, 14.7 pounds per square inch at sea level
- s. 2.26×10^6 J/kg for water
- t. temperature directly proportional to kinetic energy
- _____ 83. plasma
- _____ 84. increased temperature
- _____ 85. condensation
- 86. freezing point
- 87. sublimation
- _____ 88. amorphous material

Match each item with the correct statement below.

- a. barometer
- b. Robert Boyle
- c. kilopascal
- d. 14.7 psi
- e. 101.3 kPa
- f. Jacques Charles
- g. inverse
- _____ 89. The device used to measure blood pressure.
- 90. The device used to measure atmospheric pressure.
- _____ 91. Invented the barometer.
- _____ 92. Less at the top of a mountain than at the bottom of the mountain.
- 93. The unit of pressure in the old system of measurement in the United States.
- 94. Discovered the relationship between gas volume and temperature.

Match each item with the correct item below.

- a. formula mass
- b. ideal gas law
- c. study that relates mass to number of particles

- h. Blaise Pascal
- i. sphygmomanometer
- j. atmospheric pressure
- k. pound per square inch
- 1. small whole number ratios
- m. Evangelista Torricelli

- d. percent yield
- e. one molecule or one mole
- f. 6.02×10^{23}
- g. 0.10 mole
- h. molar mass
- i. molar volume
- j. 0.25 mole
- k. 8.31 kPa \cdot L/mol \cdot K
- 1. atomic mass unit
- m. empirical formula
- _____ 95. CO₂
 - _____ 96. 2 g of H₂
- $\underline{\qquad} 97. \quad PV = nRT$
- _____ 98. ratio of mass of product obtained to mass expected
- _____ 99. stoichiometry
- _____ 100. 24.5 g of H₂SO₄

Problem

Use a table of electronegativities to find the electronegativity difference between each of the following pairs of elements and to predict the kind of bond that will be formed.

- 101. carbon and silicon
- 102. 1,1-difluoroethylene, C₂H₂F₂, is a derivative of ethene in which the hydrogen atoms bonded to one of the carbon atoms in ethene have been replaced by fluorine atoms. Draw the electron dot structure of 1,1-difluoroethylene. Is the molecule polar? Explain.
- 103. Compare the molecules arsenic triiodide and germanium tetrafluoride. How many pairs of electrons surround the central atom? How many of these pairs are bonding? Nonbonding? What are the shapes of the molecules?
- 104. F_2O and CS_2 are both triatomic molecules. How are their structures different?

The graph in Figure 10-1 shows what happens when 1 kg sample of each of two different substances are heated. Use the information in the graph to answer the questions. Assume that room temperature in this case is 300 K.



- 105. What is the melting point of substance A?
- 106. What is the melting point of substance B?
- 107. If you mixed substance A, substance B, and water, and steadily increased the temperature, which would boil last?
- 108. Estimate the heat of fusion of substance B.
- 109. Estimate the heat of vaporization of substance B.

The table shows the fusion and vaporization data for eight substances. Use the information to answer the following questions.

Substance	Fusion Melting Point (°C)	Heat of fusion (joules/mole) (°C)	Vaporization Boiling Point	Heat of vaporization (joules/mole)
O ₂ oxygen	-219	444	-183	6820
N ₂ nitrogen	-210	720	-196	5577
NH ₃ ammonia	-78	5653	-33	23 351
CO ₂ carbon dioxide	-56	8326	-78	25 234*
N ₂ O nitrous oxide	-91	6540	-89	16 552
I ₂ iodine	114	15 648	183	4347*
H ₂ O water	0	6008	100	40 656

*Goes directly to vapor from solid. These are heats of sublimation.

- 110. Which substance has the highest boiling point? Which has the lowest boiling point?
- 111. How much energy, in joules, is required to vaporize 0.0200 mole of liquid NH₃?

112. Provide the missing data in the columns.

Temperature	Celsius, °C	Kelvin, K
Melting point of gold	1064	c
Boiling point of carbon monoxide	a	81.7
Cold winter night in Siberia	b	233
Hot summer day in Phoenix, AZ	45	d

- 113. Octane, C_8H_{18} , melts at -57°C and boils at 126°C. A few grams of octane are heated from -80°C to +140°C. Graph the heating curve for octane. Show time on the horizontal axis and temperature on the vertical axis.
- 114. At 20°C, a sample of nitrogen gas occupies 25.0 L. What volume will the nitrogen occupy at 225°C?
- 115. Carbon dioxide gas is stored in a steel container with a volume of 12.5 L under a pressure of 50.0 atm. What volume will the gas occupy when it is released from the container into a pressure of 1.00 atm?
- 116. The reading on a barometer is 764 mm Hg. If the barometer contained water instead of mercury, would you expect the reading to be more than, less than, or equal to 764 mm? Explain. Consider the densities of mercury and water.
- 117. A pair of chemistry students worked together in the laboratory to collect data on the volumes, pressures, and temperatures of several samples of gases. One student worked on Tuesday and the other on Wednesday. Each student neglected to collect certain data from time to time. From the data reported in the table, calculate the missing information indicated by the numbers (1) through (5).

	r	Fuesday Data		Wednesday Data			
Trial	Volume	Pressure	Temp.	Volume	Pressure	Temp.	
101	125 mL	1.00 atm	25°C	1	1.00 atm	0.0°C	
102	25.0 mL	650 mm Hg	22.5°C	30.0 mL	2	22.5°C	
103	39.0 mL	1.025 atm	0.0°C	35.0 mL	1.025 atm	3	
104	250.0 mL	750 mm Hg	32°C	4	780 mm Hg	47°C	
105	5	25 mm Hg	-45°C	0.079 L	760 mm Hg	0.0°C	

Nitrogen and oxygen combine with each other to form a series of compounds. This chart summarizes laboratory research done on this series of compounds. From the data supplied, calculate the empirical and molecular formulas for each oxide listed.

Compound	Percentage Nitrogen	Percentage Oxygen	Molecular Mass
А	63.6	36.4	44.01 u
В	30.4	69.6	46.00 u
С	36.9	63.1	76.01 u
D	25.9	74.1	108.01 u

Е	46 7	53 3	30.01 u
L	40.7	55.5	50.01 u

- 118. Compound A is _____.
- 119. Compound B is _____.
- 120. Compound D is _____.

Q2-Summary- Qs. Bank Answer Section

MODIFIED TRUE/FALSE

1.	ANS:	T 7 1			PTS:	1	DIF:	В
2.	ANS:	F, absorbs						
3.	PTS: ANS:	1 F, <i>s</i> , <i>p</i> , <i>d</i> , and <i>j</i>	DIF: f	В	OBJ:	7-1		
4.	PTS: ANS:	1 F, closer to	DIF:	В	OBJ:	7-3		
5.	PTS: ANS: OBJ:	1 T 7-2	DIF:	В	OBJ: PTS:	7-2 1	DIF:	В
6.	ANS: OBJ:	T 7-3			PTS:	1	DIF:	В
7.	ANS:	F, 14						
8.	PTS: ANS:	1 F, 1 <i>s</i> ²	DIF:	В	OBJ:	7-2		
9. 10	PTS: ANS: OBJ: ANS:	1 T 7-4 E less	DIF:	В	OBJ: PTS:	7-4 1	DIF:	В
11.	PTS: ANS: OBJ:	1 T 7-2	DIF:	В	OBJ: PTS:	7-2 1	DIF:	В
12.	ANS:	F, empty space	e					
13.	PTS: ANS:	1 F, low	DIF:	В	OBJ:	7-2		
14.	PTS: ANS:	1 F, polar	DIF:	В	OBJ:	9-2		
15.	PTS: ANS:	1 F, Some	DIF:	В	OBJ:	9-1		
16.	PTS: ANS: OBJ:	1 T 9-5	DIF:	В	OBJ: PTS:	9-5 1	DIF:	В

17.	ANS:	Т			PTS:	1	DIF:	В
	OBJ:	9-6						
18.	ANS:	F, negative						
	PTS:	1	DIF:	В	OBJ:	9-2		
19.	ANS:	Т			PTS:	1	DIF:	В
	OBJ:	9-2						
20.	ANS:	F, solids						
	PTS:	1	DIF:	В	OBJ:	9-2		

MULTIPLE CHOICE

21.	ANS:	С	PTS:	1	DIF:	В	OBJ:	7-1
22.	ANS:	В	PTS:	1	DIF:	В	OBJ:	7-1
23.	ANS:	В	PTS:	1	DIF:	А	OBJ:	7-1
24.	ANS:	D	PTS:	1	DIF:	В	OBJ:	7-1
25.	ANS:	D	PTS:	1	DIF:	В	OBJ:	7-2
26.	ANS:	А	PTS:	1	DIF:	В	OBJ:	7-2
27.	ANS:	А	PTS:	1	DIF:	В	OBJ:	7-2
28.	ANS:	С	PTS:	1	DIF:	В	OBJ:	7-2
29.	ANS:	D	PTS:	1	DIF:	А	OBJ:	7-4
30.	ANS:	А	PTS:	1	DIF:	А	OBJ:	7-4
31.	ANS:	В	PTS:	1	DIF:	В	OBJ:	7-4
32.	ANS:	С	PTS:	1	DIF:	В	OBJ:	7-4
33.	ANS:	С	PTS:	1	DIF:	А	OBJ:	7-3
34.	ANS:	D	PTS:	1	DIF:	В	OBJ:	7-4
35.	ANS:	С	PTS:	1	DIF:	В	OBJ:	7-1
36.	ANS:	D	PTS:	1	DIF:	В	OBJ:	8-1
37.	ANS:	В	PTS:	1	DIF:	В	OBJ:	8-3
38.	ANS:	А	PTS:	1	DIF:	В	OBJ:	8-3
39.	ANS:	С	PTS:	1	DIF:	В	OBJ:	8-1
40.	ANS:	В	PTS:	1	DIF:	В	OBJ:	8-4
41.	ANS:	С	PTS:	1	DIF:	В	OBJ:	8-4
42.	ANS:	С	PTS:	1	DIF:	В	OBJ:	8-4
43.	ANS:	А	PTS:	1	DIF:	В	OBJ:	8-1
44.	ANS:	В	PTS:	1	DIF:	В	OBJ:	8-3
45.	ANS:	А	PTS:	1	DIF:	В	OBJ:	8-3
46.	ANS:	А	PTS:	1	DIF:	В	OBJ:	8-1
47.	ANS:	В	PTS:	1	DIF:	В	OBJ:	8-2
48.	ANS:	С	PTS:	1	DIF:	В	OBJ:	8-1
49.	ANS:	А	PTS:	1	DIF:	В	OBJ:	8-3
50.	ANS:	В	PTS:	1	DIF:	В	OBJ:	8-3
51.	ANS:	С	PTS:	1	DIF:	В	OBJ:	8-2
52.	ANS:	В	PTS:	1	DIF:	В	OBJ:	8-2
53.	ANS:	В	PTS:	1	DIF:	В	OBJ:	8-4
54.	ANS:	D	PTS:	1	DIF:	В	OBJ:	8-5

55.	ANS:	С	PTS:	1	DIF:	В	OBJ:	8-4
56.	ANS:	А	PTS:	1	DIF:	В	OBJ:	8-5
57.	ANS:	В	PTS:	1	DIF:	В	OBJ:	8-5
58.	ANS:	В	PTS:	1	DIF:	В	OBJ:	8-5
59.	ANS:	С	PTS:	1	DIF:	В	OBJ:	8-5
60.	ANS:	D	PTS:	1	DIF:	В	OBJ:	8-4
матсни	NC							
	U							
61.	ANS:	С	PTS:	1	DIF:	В	OBJ:	7-3
62.	ANS:	E	PTS:	1	DIF:	В	OBJ:	7-2
63.	ANS:	А	PTS:	1	DIF:	В	OBJ:	7-2
		~			_	_		
64.	ANS:	C	PTS:	1	DIF:	В	OBJ:	8-1
65.	ANS:	C	PTS:	1	DIF:	В	OBJ:	8-1
66.	ANS:	В	PTS:	1	DIF:	В	OBJ:	8-1
67.	ANS:	A	PTS:	1	DIF:	В	OBJ:	8-1
68.	ANS:	В	PTS:	1	DIF:	В	OBJ:	8-1
69.	ANS:	В	PTS:	1	DIF:	В	OBJ:	8-1
70.	ANS:	А	PTS:	1	DIF:	В	OBJ:	9-3
71.	ANS:	В	PTS:	1	DIF:	В	OBJ:	9-2
72.	ANS:	А	PTS:	1	DIF:	В	OBJ:	9-3
73.	ANS:	В	PTS:	1	DIF:	В	OBJ:	9-2
74.	ANS:	В	PTS:	1	DIF:	В	OBJ:	9-2
75.	ANS:	С	PTS:	1	DIF:	В	OBJ:	9-2
76.	ANS:	G	PTS:	1	DIF:	В	OBJ:	9-1
77.	ANS:	D	PTS:	1	DIF:	В	OBJ:	9-1
78.	ANS:	E	PTS:	1	DIF:	В	OBJ:	9-1
79	ANS	А	PTS∙	1	DIF	В	OBI.	10-2
80	ANS.	F	PTS.	1	DIF.	B	OBJ:	10-1
81.	ANS:	K	PTS:	1	DIF:	B	OBJ:	10-6
82.	ANS:	D	PTS:	1	DIF:	B	OBJ:	10-2
021	11.01	2	110.	-	2111	2	0200	10 -
83.	ANS:	L	PTS:	1	DIF:	В	OBJ:	10-3
84.	ANS:	J	PTS:	1	DIF:	В	OBJ:	10-2
85.	ANS:	E	PTS:	1	DIF:	В	OBJ:	10-1
86.	ANS:	Н	PTS:	1	DIF:	В	OBJ:	10-2
87.	ANS:	Ι	PTS:	1	DIF:	В	OBJ:	10-1
88.	ANS:	0	PTS:	1	DIF:	В	OBJ:	10-3
80	ANS	I	ρτς.	1	DIF	B	ORI-	11_2
90. 90	ANC.	A	PTS.	1	DIF.	B	ORI-	11_2
91	ANS.	M	PTS.	1	DIF.	B	ORI.	11-2
92	ANS	J	PTS.	1	DIF.	B	OBJ:	11-2
<i>, _</i> .	4 44 16.7 *	~	L/ ·				~ ~ ~ ~ ~	

93.	ANS:	Κ	PTS:	1	DIF:	В	OBJ:	11-2
94.	ANS:	F	PTS:	1	DIF:	В	OBJ:	11-5
95.	ANS:	E	PTS:	1	DIF:	В	OBJ:	12-1
96.	ANS:	Н	PTS:	1	DIF:	В	OBJ:	12-1
97.	ANS:	В	PTS:	1	DIF:	В	OBJ:	12-5
98.	ANS:	D	PTS:	1	DIF:	В	OBJ:	12-4
99.	ANS:	С	PTS:	1	DIF:	В	OBJ:	12-3
100.	ANS:	J	PTS:	1	DIF:	А	OBJ:	12-1

PROBLEM

101. ANS: $\Delta EN = 0.7$; polar covalent

PTS: 1 DIF: A OBJ: 9-1

102. ANS:

The molecule is polar because the highly electronegative fluorine atoms are at one end of the molecule. (See Solution 9-4.)

F CINC F

Solution 9-4

103. ANS:

In each case, an octet of four electron pairs surrounds the central atom. In AsI_3 , one of these pairs is nonbonding; in GeF₄, there are no nonbonding pairs. AsI_3 has a triangular pyramidal shape, while GeF₄ is tetrahedral. (See Solution 9-6.)



Solution 9-6

PIS: I DIF: A OBJ: 9-	PTS: 1	DIF: A	OBJ: 9-4
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104. ANS:

F₂O is a bent molecule, similar to H₂O; CS₂ is a linear molecule, similar to CO₂. (See Solution 9-7.)

≠ F ≇ Ö ≋ ≠ F ≇	\$\$##C##S
a.	ь.
	Solution 9-7

105.	PTS: ANS:	1	DIF:	В	OBJ:	9-5				
	The m	The melting point is approximately 350 K.								
106.	PTS: ANS:	1	DIF:	В	OBJ:	10-4				
	It is ap	It is approximately 200 K.								
107.	PTS: ANS:	1	DIF:	В	OBJ:	10-4				
	Substa	Substance A would boil last.								
108.	PTS: ANS:	1	DIF:	В	OBJ:	10-2				
	It is approximately 2.0×10^4 kJ.									
109	PTS:	1	DIF:	А	OBJ:	10-4				
107.	It is approximately 4.5×10^4 kJ.									
110	PTS:	1	DIF:	А	OBJ:	10-4				
110.	Iodine has the highest boiling point; nitrogen has the lowest.									
111	PTS:	1	DIF:	В	OBJ:	10-4				
111.	23 351 J/mol \times 0.0200 mol = 467.0 J.									
112	PTS:	1	DIF:	В	OBJ:	10-6				
112.	a191.5, b40, c. 1337, d. 318									
113.	PTS: ANS:	1	DIF:	В	OBJ:	10-5				
	266 20	nuuon 10-1.								



 $\begin{array}{ccccccc} PTS: \ 1 & DIF: \ B & OBJ: \ 12-5 \\ 120. & ANS: \\ N_2O_5 \ (Empirical and molecular formulas are the same.) \end{array}$

PTS: 1 DIF: B OBJ: 12-5