

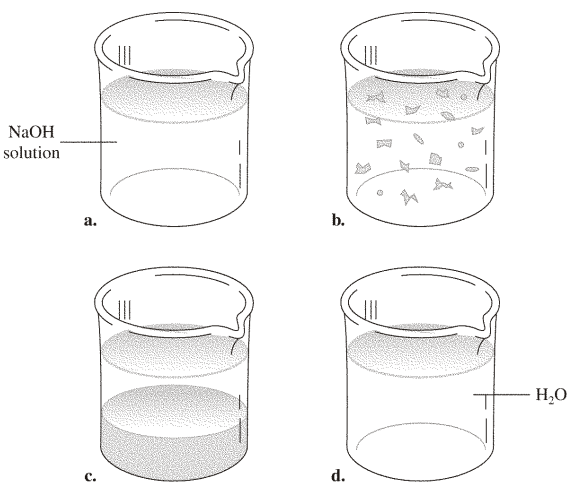
Practice Final

Multiple Choice

Identify the letter of the choice that best completes the statement or answers the question.

- _____ 1. Matter includes all of the following EXCEPT
- | | | | |
|----|--------|----|--------------|
| a. | air. | c. | smoke. |
| b. | light. | d. | water vapor. |
- _____ 2. A physical property may be investigated by
- | | | | |
|----|-------------------------|----|-----------------------------|
| a. | melting ice. | c. | allowing silver to tarnish. |
| b. | letting milk turn sour. | d. | burning wood. |
- _____ 3. Chemical properties
- | | |
|----|---|
| a. | include changes of state of a substance. |
| b. | include mass and color. |
| c. | include changes that alter the identity of a substance. |
| d. | can be observed without altering the identity of a substance. |
- _____ 4. Two features that distinguish matter are
- | | | | |
|----|----------------------|----|--------------------|
| a. | mass and velocity. | c. | mass and volume. |
| b. | weight and velocity. | d. | weight and volume. |
- _____ 5. A chemical change occurs when
- | | |
|----|--|
| a. | dissolved minerals solidify to form a crystal. |
| b. | ethanol is purified through distillation. |
| c. | salt deposits form from evaporated sea water. |
| d. | a leaf changes color. |
- _____ 6. The melting of candle wax is classified as a physical change because it
- | | |
|----|---|
| a. | produces no new substances. |
| b. | transfers energy. |
| c. | absorbs heat. |
| d. | changes the chemical properties of wax. |
- _____ 7. An example of a chemical change is
- | | | | |
|----|---------------|----|----------------------|
| a. | sanding wood. | c. | milk going sour. |
| b. | melting ice. | d. | vaporizing gasoline. |
- _____ 8. A physical change occurs when a
- | | | | |
|----|------------------------|----|----------------------------------|
| a. | peach spoils. | c. | bracelet turns your wrist green. |
| b. | copper bowl tarnishes. | d. | glue gun melts a glue stick. |
- _____ 9. The particles in a solid are
- | | | | |
|----|--------------------------|----|--------------------------------|
| a. | packed closely together. | c. | constantly in motion. |
| b. | very far apart. | d. | able to slide past each other. |
- _____ 10. The state of matter in which a material has definite shape and definite volume is the
- | | | | |
|----|---------------|----|-----------------|
| a. | liquid state. | c. | gaseous state. |
| b. | solid state. | d. | vaporous state. |
- _____ 11. The state of matter in which a material has neither a definite shape nor a definite volume is the
- | | | | |
|----|----------------|----|------------------|
| a. | gaseous state. | c. | elemental state. |
| b. | liquid state. | d. | solid state. |
- _____ 12. The state of matter in which particles are rigidly held in fixed positions is the
- | | | | |
|----|----------------|----|-----------------|
| a. | gaseous state. | c. | vaporous state. |
| b. | liquid state. | d. | solid state. |

13. A substance classified as a fluid contains particles that
- | | |
|----|--|
| a. | quickly expand into any available space. |
| b. | are held in fixed positions. |
| c. | may slide past each other. |
| d. | are very far from each other. |
14. The state of matter in which a material has a definite volume but no definite shape is the
- | | | | |
|----|----------------|----|---------------|
| a. | gaseous state. | c. | frozen state. |
| b. | solid state. | d. | liquid state. |
15. Under ordinary conditions of temperature and pressure, the particles in a gas are
- | | | | |
|----|---------------------------|----|--------------------------------|
| a. | closely packed. | c. | held in fixed positions. |
| b. | very far from each other. | d. | able to slide past each other. |
16. A list of pure substances could include
- | | | | |
|----|---------------------------|----|----------------------------|
| a. | bread dough. | c. | vitamin C (ascorbic acid). |
| b. | vinegar (5% acetic acid). | d. | sea water. |



17. The homogeneous mixture in the illustration above is in container
- | | | | |
|----|----|----|----|
| a. | a. | c. | c. |
| b. | b. | d. | d. |
18. Physical means can be used to separate
- | | | | |
|----|------------------|----|------------|
| a. | elements. | c. | mixtures. |
| b. | pure substances. | d. | compounds. |

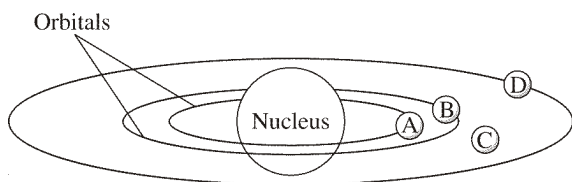
1	Group 1		Group 13										Group 14		Group 15		Group 16		Group 17		Group 18
1	3		4		5		6		7		8		9		10		11		12		2
	H		Li		Be		B		C		N		O		F		Ne		He		
	Hydrogen 1.01		Lithium 6.94		Beryllium 9.01		Boron 10.81		Carbon 12.01		Nitrogen 14.01		Oxygen 16.00		Fluorine 19.00		Neon 20.18		Helium 4.00		
2	11		12		13		14		15		16		17		18		19		20		21
	Na		Mg		Al		Si		P		S		Cl		Ar		K		Ca		
	Sodium 22.99		Magnesium 24.30		Aluminum 26.98		Silicon 28.08		Phosphorus 30.97		Sulfur 32.07		Chlorine 35.45		Argon 39.95		Potassium 39.10		Calcium 40.08		
3	19		20		31		32		33		34		35		36		37		38		39
	K		Ca		Ga		Ge		As		Se		Br		Kr		Rb		Sr		
	Potassium 39.10		Calcium 40.08		Gallium 69.72		Germanium 72.61		Arsenic 74.92		Selenium 78.96		Bromine 79.90		Krypton 83.80		Rubidium 85.47		Strontium 87.62		
4	37		38		49		50		51		52		53		54		55		56		57
	Rb		Sr		In		Sn		Sb		Te		I		Xe		Cs		Ba		
	Rubidium 85.47		Strontium 87.62		Indium 114.82		Tin 118.71		Antimony 121.76		Tellurium 127.60		Iodine 126.90		Xenon 131.29		Cesium 132.90		Barium 137.33		
5	55		56		81		82		83		84		85		86		87		88		89
	Cs		Ba		Tl		Pb		Bi		Po		At		Rn		Fr		Ra		
	Cesium 132.90		Barium 137.33		Thallium 204.38		Lead 207.2		Bismuth 208.98		Polonium (208.98)		Astatine (209.99)		Radon (222.02)		Francium (223.02)		Radium (226.02)		
6	87		88																		
	Fr		Ra																		
	Francium (223.02)		Radium (226.02)																		
7																					

19. Group ____ in the figure above contains only metals.
- | | | | |
|----|----|----|----|
| a. | 2 | c. | 17 |
| b. | 13 | d. | 18 |
20. Based on their location in the figure above, oxygen and selenium have
- | | | | |
|----|------------------------------|----|---------------------------------------|
| a. | the same number of neutrons. | c. | similar properties. |
| b. | the same conductivity. | d. | the same number of electron orbitals. |
21. Use the figure above. Which element has properties most similar to those of sodium?
- | | | | |
|----|---------|----|----------|
| a. | boron | c. | Sulfur |
| b. | calcium | d. | Nitrogen |
22. A horizontal row of blocks in the periodic table is called a(n)
- | | | | |
|----|---------|----|---------|
| a. | group. | c. | family. |
| b. | period. | d. | octet. |
23. Elements in a group in the periodic table can be expected to have similar
- | | | | |
|----|-----------------|----|----------------------|
| a. | atomic masses. | c. | numbers of neutrons. |
| b. | atomic numbers. | d. | properties. |
24. The elements that border the zigzag line in the periodic table are
- | | | | |
|----|-----------|----|-------------|
| a. | inactive. | c. | metalloids. |
| b. | metals. | d. | nonmetals. |
25. Which is NOT a property of metals?
- | | | | |
|----|---|----|------------------|
| a. | malleability | c. | Unreactivity |
| b. | ability to conduct heat and electricity | d. | tensile strength |
26. All of the following are steps in the scientific method EXCEPT
- | | |
|----|---|
| a. | observing and recording data. |
| b. | forming a hypothesis. |
| c. | discarding data inconsistent with the hypothesis. |
| d. | developing a model. |

27. The symbol mm represents
- | | | | |
|----|-------------|----|-------------|
| a. | micrometer. | c. | milliliter. |
| b. | millimeter. | d. | meter. |
28. The symbols for units of length in order from smallest to largest are
- | | | | |
|----|----------------|----|----------------|
| a. | m, cm, mm, km. | c. | km, mm, cm, m. |
| b. | mm, m, cm, km. | d. | mm, cm, m, km. |
29. The quantity of matter per unit volume is
- | | | | |
|----|---------|----|----------|
| a. | mass. | c. | inertia. |
| b. | weight. | d. | density. |
30. The liter is defined as
- | | | | |
|----|------------------------|----|-----------------------|
| a. | 1000 m ³ . | c. | 1000 g ³ . |
| b. | 1000 cm ³ . | d. | 1000 c ³ . |
31. 0.05 cm is the same as
- | | | | |
|----|-------------|----|---------|
| a. | 0.000 05 m. | c. | 0.05 m. |
| b. | 0.005 mm. | d. | 0.5 mm. |
32. 1.06 L of water is equivalent to
- | | | | |
|----|--------------|----|----------|
| a. | 0.001 06 mL. | c. | 106 mL. |
| b. | 10.6 mL. | d. | 1060 mL. |
33. The number of grams equal to 0.5 kg is
- | | | | |
|----|---------|----|-------|
| a. | 0.0005. | c. | 500. |
| b. | 0.005. | d. | 5000. |
34. 30°C equals
- | | | | |
|----|------------|----|-----------|
| a. | -243.15 K. | c. | 243.15 K. |
| b. | 9.1 K. | d. | 303.15 K. |
35. Convert -25°C to the kelvin scale.
- | | | | |
|----|-----------|----|----------|
| a. | -323.15 K | c. | 248.15 K |
| b. | -248.15 K | d. | 323.15 K |
36. The speed of light is 300 000 km/s. In scientific notation, this speed is
- | | | | |
|----|--------------------------|----|--------------------------|
| a. | 3×10^5 km/s. | c. | 3.0×10^6 km/s. |
| b. | 3.00×10^5 km/s. | d. | 3.00×10^6 km/s. |
37. The average distance between the Earth and the moon is 386 000 km. Expressed in scientific notation, this distance is
- | | | | |
|----|-----------------------|----|------------------------|
| a. | 386×10^3 km. | c. | 3.8×10^5 km. |
| b. | 38×10^4 km. | d. | 3.86×10^5 km. |
38. The law of conservation of mass follows from the concept that
- | | |
|----|--|
| a. | atoms are indivisible. |
| b. | atoms of different elements have different properties. |
| c. | matter is composed of atoms. |
| d. | atoms can be destroyed in chemical reactions. |
39. If each atom of element D has 3 mass units and each atom of element E has 5 mass units, a chemical molecule composed of one atom each of D and E has
- | | | | |
|----|----------------|----|----------------|
| a. | 15 mass units. | c. | 35 mass units. |
| b. | 2 mass units. | d. | 8 mass units. |
40. In oxides of nitrogen, such as N₂O, NO, NO₂, and N₂O₃, atoms combine in small whole-number ratios. This evidence supports the law of
- | | | | |
|----|-----------------------|----|-----------------------|
| a. | conservation of mass. | c. | definite composition. |
| b. | multiple proportions. | d. | mass action. |

41. According to Dalton's atomic theory, atoms
- | | |
|----|--|
| a. | are destroyed in chemical reactions. |
| b. | can be divided. |
| c. | of each element are identical in size, mass, and other properties. |
| d. | of different elements cannot combine. |
42. Which of the following is NOT part of Dalton's atomic theory?
- | | |
|----|--|
| a. | Atoms cannot be divided, created, or destroyed. |
| b. | The number of protons in an atom is its atomic number. |
| c. | In chemical reactions, atoms are combined, separated, or rearranged. |
| d. | All matter is composed of extremely small particles called atoms. |
43. According to Dalton's atomic theory, atoms
- | | |
|----|--|
| a. | of different elements combine in simple whole-number ratios to form compounds. |
| b. | can be divided into protons, neutrons, and electrons. |
| c. | of all elements are identical in size and mass. |
| d. | can be destroyed in chemical reactions. |
44. Dalton's theory essentially agreed with the present atomic theory EXCEPT for the statement that
- | | |
|----|--|
| a. | all matter is made up of small particles called atoms. |
| b. | atoms are not divided in chemical reactions. |
| c. | atoms of the same element are chemically alike. |
| d. | all atoms of the same element have the same mass. |
45. Which concept in Dalton's atomic theory has been modified?
- | | |
|----|---|
| a. | All matter is composed of atoms. |
| b. | Atoms of different elements have different properties and masses. |
| c. | Atoms can combine in chemical reactions. |
| d. | Atoms cannot be divided. |
46. After measuring the ratio of the charge of a cathode-ray particle to its mass, Thomson concluded that the particles
- | | | | |
|----|------------------------|----|----------------------------|
| a. | had no mass. | c. | had a very large mass. |
| b. | had a very small mass. | d. | carried a positive charge. |
47. The deflection of cathode rays in Thomson's experiments was evidence of the ____ nature of electrons.
- | | | | |
|----|---------|----|----------|
| a. | wave | c. | Particle |
| b. | charged | d. | Spinning |
48. Who discovered the nucleus by bombarding gold foil with positively charged particles and noting that some particles were widely deflected?
- | | | | |
|----|------------|----|----------|
| a. | Rutherford | c. | Chadwick |
| b. | Dalton | d. | Bohr |
49. In Rutherford's experiments, most of the particles
- | | | | |
|----|--------------------------|----|----------------------------|
| a. | bounced back. | c. | were absorbed by the foil. |
| b. | passed through the foil. | d. | combined with the foil. |
50. Rutherford's experimental results led him to conclude that atoms contain massive central regions that have
- | | | | |
|----|--------------------|----|-----------------------------|
| a. | a positive charge. | c. | no charge. |
| b. | a negative charge. | d. | both protons and electrons. |
51. A nuclear particle that has about the same mass as a proton, but with no electrical charge, is called a(n)
- | | | | |
|----|----------|----|-----------|
| a. | nuclide. | c. | electron. |
| b. | neutron. | d. | isotope. |

52. An atom is electrically neutral because
- | | |
|----|---|
| a. | neutrons balance the protons and electrons. |
| b. | nuclear forces stabilize the charges. |
| c. | the numbers of protons and electrons are equal. |
| d. | the numbers of protons and neutrons are equal. |
53. Most of the volume of an atom is occupied by the
- | | | | |
|----|-----------|----|-----------------|
| a. | nucleus. | c. | electron cloud. |
| b. | nuclides. | d. | protons. |
54. The smallest unit of an element that can exist either alone or in combination with other such particles of the same or different elements is the
- | | | | |
|----|-----------|----|----------|
| a. | electron. | c. | neutron. |
| b. | proton. | d. | atom. |
55. Isotopes are atoms of the same element that have different
- | | | | |
|----|--------------------------------|----|-----------------------|
| a. | principal chemical properties. | c. | numbers of protons. |
| b. | masses. | d. | numbers of electrons. |
56. Atoms of the same element that have different masses are called
- | | | | |
|----|-----------|----|-----------|
| a. | moles. | c. | nuclides. |
| b. | isotopes. | d. | neutrons. |
57. Isotopes of each element differ in
- | | |
|----|--|
| a. | the number of neutrons in the nucleus. |
| b. | atomic number. |
| c. | the number of electrons in the highest energy level. |
| d. | the total number of electrons. |
58. An aluminum isotope consists of 13 protons, 13 electrons, and 14 neutrons. Its mass number is
- | | | | |
|----|-----|----|-----|
| a. | 13. | c. | 27. |
| b. | 14. | d. | 40. |
59. Zn-66 (atomic number 30) has
- | | | | |
|----|--------------|----|--------------|
| a. | 30 neutrons. | c. | 36 neutrons. |
| b. | 33 neutrons. | d. | 96 neutrons. |
60. The mass of two moles of oxygen atoms (atomic mass 16 amu) is
- | | | | |
|----|-------|----|-------|
| a. | 16 g. | c. | 48 g. |
| b. | 32 g. | d. | 64 g. |
61. The mass of a sample containing 3.5 mol of silicon atoms (atomic mass 28.0855 amu) is
- | | | | |
|----|-------|----|-------|
| a. | 28 g. | c. | 72 g. |
| b. | 35 g. | d. | 98 g. |
62. The energy of a photon, or quantum, is related to its
- | | | | |
|----|--------|----|------------|
| a. | mass. | c. | frequency. |
| b. | speed. | d. | size. |
63. A bright-line spectrum of an atom is caused by the energy released when electrons
- | | |
|----|--|
| a. | jump to a higher energy level. |
| b. | fall to a lower energy level. |
| c. | absorb energy and jump to a higher energy level. |
| d. | absorb energy and fall to a lower energy level. |



64. According to Bohr, electrons cannot reside at _____ in the figure above.
- | | |
|------------|------------|
| a. point A | c. point C |
| b. point B | d. point D |
65. The letter designations for the first four sublevels with the number of electrons that can be accommodated in each sublevel are
- | | |
|---|---|
| a. $s:1, p:3, d:10, \text{ and } f:14.$ | c. $s:2, p:6, d:10, \text{ and } f:14.$ |
| b. $s:1, p:3, d:5, \text{ and } f:7.$ | d. $s:1, p:2, d:3, \text{ and } f:4.$ |
66. The element with electron configuration $1s^2 2s^2 2p^6 3s^2 3p^2$ is
- | | |
|---------------------|---------------------|
| a. Mg ($Z = 12$). | c. S ($Z = 16$). |
| b. C ($Z = 6$). | d. Si ($Z = 14$). |
67. What is the electron configuration for nitrogen, atomic number 7?
- | | |
|---------------------|--------------------------|
| a. $1s^2 2s^2 2p^3$ | c. $1s^2 2s^3 2p^1$ |
| b. $1s^2 2s^3 2p^2$ | d. $1s^2 2s^2 2p^2 3s^1$ |
68. Mendeleev left spaces in his periodic table and predicted several elements and their
- | | |
|--------------------|-------------------|
| a. atomic numbers. | c. properties. |
| b. colors. | d. radioactivity. |
69. Moseley's work led to the realization that elements with similar properties occurred at regular intervals when the elements were arranged in order of increasing
- | | |
|-----------------|-------------------|
| a. atomic mass. | c. radioactivity. |
| b. density. | d. atomic number. |
70. What are the elements with atomic numbers from 58 to 71 in the periodic table called?
- | | |
|----------------------------|--------------------------|
| a. the lanthanide elements | c. the actinide elements |
| b. the noble gases | d. the alkali metals |
71. Argon, krypton, and xenon are
- | | |
|---------------------------|-----------------|
| a. alkaline earth metals. | c. actinides. |
| b. noble gases. | d. lanthanides. |
72. Elements in a group or column in the periodic table can be expected to have similar
- | | |
|--------------------|-------------------------|
| a. atomic masses. | c. numbers of neutrons. |
| b. atomic numbers. | d. properties. |
73. A horizontal row of blocks in the periodic table is called a(n)
- | | |
|------------|------------|
| a. group. | c. family. |
| b. period. | d. octet. |

1	Group 1		Group 2		Group 17		Group 18
1	3 Li Lithium 6.94		4 Be Beryllium 9.01		9 F Fluorine 19.00		2 He Helium 4.00
2	11 Na Sodium 22.99		12 Mg Magnesium 24.30		17 Cl Chlorine 35.45		10 Ne Neon 20.18
3	19 K Potassium 39.10		20 Ca Calcium 40.08		35 Br Bromine 79.90		18 Ar Argon 39.95
4	37 Rb Rubidium 85.47		38 Sr Strontium 87.62		53 I Iodine 126.90		36 Kr Krypton 83.80
5	55 Cs Cesium 132.90		56 Ba Barium 137.33		85 At Astatine (209.99)		54 Xe Xenon 131.29
6	87 Fr Francium (223.02)		88 Ra Radium (226.02)		86 Rn Radon (222.02)		
7							

74. To which group do lithium and potassium belong? Refer to the figure above.
- | | | | |
|----|-------------------|----|-------------|
| a. | alkali metals | c. | halogens |
| b. | transition metals | d. | noble gases |
75. Refer to the figure above. To which group do fluorine and chlorine belong?
- | | | | |
|----|-----------------------|----|-----------|
| a. | alkaline-earth metals | c. | halogens |
| b. | transition elements | d. | actinides |
76. The electron configuration of aluminum, atomic number 13, is $[\text{Ne}] 3s^2 3p^1$. Aluminum is in Period
- | | | | |
|----|----|----|-----|
| a. | 2. | c. | 6. |
| b. | 3. | d. | 13. |
77. In nature, the alkali metals occur as
- | | | | |
|----|------------|----|---------------|
| a. | elements. | c. | complex ions. |
| b. | compounds. | d. | gases. |
78. The energy required to remove an electron from an atom is the atom's
- | | | | |
|----|--------------------|----|--------------------|
| a. | electron affinity. | c. | electronegativity. |
| b. | electron energy. | d. | ionization energy. |
79. A measure of the ability of an atom in a chemical compound to attract electrons is called
- | | | | |
|----|-------------------------|----|-----------------------|
| a. | electron affinity. | c. | electronegativity. |
| b. | electron configuration. | d. | ionization potential. |
80. When an electron is acquired by a neutral atom, the energy change is called
- | | | | |
|----|--------------------|----|-------------------------|
| a. | electron affinity. | c. | ionization energy. |
| b. | electronegativity. | d. | electron configuration. |

81. A positive ion is known as a(n)
- | | | | |
|----|-------------------|----|---------|
| a. | ionic radius. | c. | cation. |
| b. | valence electron. | d. | anion |
82. A negative ion is known as a(n)
- | | | | |
|----|-------------------|----|---------|
| a. | ionic radius. | c. | cation. |
| b. | valence electron. | d. | anion. |
83. In a row in the periodic table, as the atomic number increases, the atomic radius generally
- | | | | |
|----|-------------------|----|-----------------------|
| a. | decreases. | c. | increases. |
| b. | remains constant. | d. | becomes unmeasurable. |
84. Within a group of elements, as the atomic number increases, the atomic radius
- | | | | |
|----|---------------------------------|----|-------------------------------|
| a. | increases. | c. | decreases regularly. |
| b. | remains approximately constant. | d. | decreases, but not regularly. |
85. The energy required to remove an electron from an atom _____ as you move left to right from potassium through iron.
- | | | | |
|----|---------------------|----|----------------------|
| a. | generally increases | c. | does not change |
| b. | generally decreases | d. | varies unpredictably |
86. As independent particles, atoms are
- | | | | |
|----|--------------------------------------|----|--------------------------|
| a. | at relatively high potential energy. | c. | very stable. |
| b. | at relatively low potential energy. | d. | part of a chemical bond. |
87. Atoms are _____ when they are combined.
- | | | | |
|----|-------------|----|----------------------------|
| a. | more stable | c. | not bound together |
| b. | less stable | d. | at a high potential energy |
88. Atoms naturally move
- | | | | |
|----|-------------------------------|----|------------------------|
| a. | toward high potential energy. | c. | toward less stability. |
| b. | toward low potential energy. | d. | away from each other. |
89. When atoms share electrons, the electrical attraction of an atom for the electrons is called the atom's
- | | | | |
|----|--------------------|----|----------------|
| a. | electron affinity. | c. | resonance. |
| b. | electronegativity. | d. | hybridization. |
90. In a molecule of fluorine, the two shared electrons give each fluorine atom _____ electron(s) in the outer energy level.
- | | | | |
|----|---|----|----|
| a. | 1 | c. | 8 |
| b. | 2 | d. | 32 |
91. The octet rule states that chemical compounds tend to form so that each atom has an octet of electrons in
- | | | | |
|----|------------------------------------|----|------------------------|
| a. | its highest occupied energy level. | c. | its <i>d</i> orbitals. |
| b. | the 1s orbital. | d. | its <i>p</i> orbitals. |
92. The electron configuration of nitrogen is $1s^2 2s^2 2p^3$. How many more electrons does nitrogen need to satisfy the octet rule?
- | | | | |
|----|---|----|---|
| a. | 1 | c. | 5 |
| b. | 3 | d. | 8 |
93. The elements of the _____ group satisfy the octet rule without forming compounds.
- | | | | |
|----|-----------|----|----------------------|
| a. | main | c. | alkali metal |
| b. | noble gas | d. | alkaline-earth metal |
94. In drawing a Lewis structure, each nonmetal atom except hydrogen should be surrounded by
- | | | | |
|----|--------------|----|---------------|
| a. | 2 electrons. | c. | 8 electrons. |
| b. | 4 electrons. | d. | 10 electrons. |
95. In drawing a Lewis structure, the central atom is the
- | | | | |
|----|--------------------------------------|----|---------------------------------|
| a. | atom with the greatest mass. | c. | atom with the fewest electrons. |
| b. | atom with the highest atomic number. | d. | least electronegative atom. |

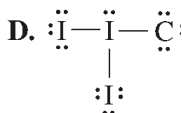
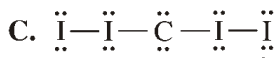
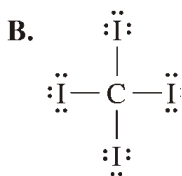
96. To draw a Lewis structure, one must know the

a.	number of valence electrons in each atom.
b.	atomic mass of each atom.
c.	bond length of each atom.
d.	ionization energy of each atom.



97. What is the Lewis structure for hydrogen chloride, HCl?

a.	A	c.	C
b.	B	d.	D



98. What is the Lewis structure for carbon tetraiodide, which contains one carbon atom and four iodine atoms?

a.	A	c.	C
b.	B	d.	D

99. A formula unit of an ionic compound

a.	is an independent unit that can be isolated and studied.
b.	is the simplest ratio of ions that balances total charge.
c.	describes the crystal lattice.
d.	all of the above

100. Shifting the layers of an ionic crystal causes the crystal to

a.	be drawn into a wire.	c.	become metallic.
b.	shatter.	d.	freeze.

101. A chemical formula includes the symbols of the elements in the compound and subscripts that indicate

a.	the number of moles in each element.
b.	how many atoms or ions of each type are combined in the simplest unit.
c.	the formula mass.
d.	the charges on the elements or ions.

102. How many atoms of fluorine are present in a molecule of carbon tetrafluoride, CF_4 ?

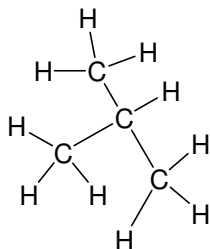
a.	1	c.	4
b.	2	d.	5

103. What is the formula for zinc fluoride?

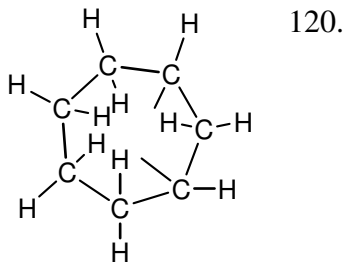
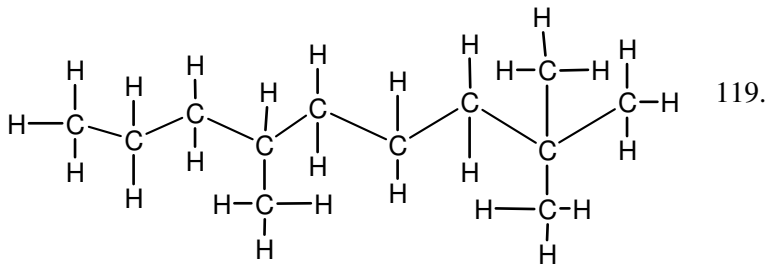
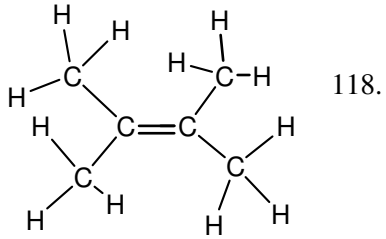
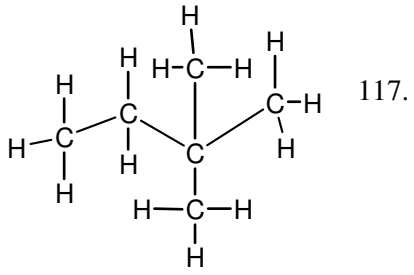
a.	ZnF	c.	Zn_2F
b.	ZnF_2	d.	Zn_2F_3

104. What is the formula for the compound formed by lead(II) ions and chromate ions?
- | | | | |
|----|----------------------------------|----|--|
| a. | PbCrO ₄ | c. | Pb ₂ (CrO ₄) ₃ |
| b. | Pb ₂ CrO ₄ | d. | Pb(CrO ₄) ₂ |
105. Name the compound Zn₃(PO₄)₂.
- | | | | |
|----|----------------------|----|----------------|
| a. | zinc potassium oxide | c. | zinc phosphate |
| b. | trizinc polyoxide | d. | zinc phosphite |
106. Name the compound Fe(NO₂)₂.
- | | | | |
|----|------------------|----|-----------------|
| a. | iron(II) nitrate | c. | ferric nitrate |
| b. | iron(II) nitrite | d. | ferrous nitride |
107. What is the metallic ion in copper(II) chloride?
- | | | | |
|----|------------------|----|------------------|
| a. | Co ²⁺ | c. | Cu ²⁺ |
| b. | Cl ²⁻ | d. | Cl ⁻ |
108. The molar mass of CCl₄ is 153.81 g/mol. How many grams of CCl₄ are needed to have 5.000 mol?
- | | | | |
|----|---------|----|----------|
| a. | 5 g | c. | 769.0 g |
| b. | 30.76 g | d. | 796.05 g |
109. The molar mass of LiF is 25.94 g/mol. How many moles of LiF are present in 10.37 g?
- | | | | |
|----|------------|----|-----------|
| a. | 0.3998 mol | c. | 2.500 mol |
| b. | 1.333 mol | d. | 36.32 mol |
110. How many oxygen atoms are there in 0.5 mol of CO₂?
- | | | | |
|----|-------------------------|----|---------|
| a. | 6.02 × 10 ²³ | c. | 15.9994 |
| b. | 3.01 × 10 ²³ | d. | 11 |
111. A carbon atom can bond to four other atoms because it has
- | | | | |
|----|-------------------------|----|----------------------------|
| a. | four different cations. | c. | two inner energy levels. |
| b. | four valence electrons. | d. | no protons in its nucleus. |
112. Alkanes are hydrocarbons that contain
- | | | | |
|----|----------------------------------|----|-------------------------------|
| a. | single covalent bonds only. | c. | carbon and oxygen only. |
| b. | single or double covalent bonds. | d. | carbon, hydrogen, and oxygen. |
113. Which compounds have carbon-carbon double bonds?
- | | | | |
|----|---------|----|-----------------|
| a. | alkanes | c. | alcohols |
| b. | alkenes | d. | ionic compounds |
114. How many carbons are in a molecule of hexane?
- | | | | |
|----|---|----|---|
| a. | 3 | c. | 5 |
| b. | 4 | d. | 6 |
115. What is the name of the alkane having five carbons?
- | | | | |
|----|---------|----|---------|
| a. | propane | c. | octane |
| b. | methane | d. | pentane |

Name the molecules 116-120



116.



Practice Final Answer Section

- | | | | |
|-------|-------|-------|--------------------------------|
| 1. B | 31. D | 62. C | 93. B |
| 2. A | 32. D | 63. B | 94. C |
| 3. C | 33. C | 64. C | 95. D |
| 4. C | 34. D | 65. C | 96. A |
| 5. D | 35. C | 66. D | 97. D |
| 6. A | 36. A | 67. A | 98. B |
| 7. C | 37. D | 68. C | 99. B |
| 8. D | 38. A | 69. D | 100. B |
| 9. A | 39. D | 70. A | 101. B |
| 10. B | 40. B | 71. B | 102. C |
| 11. A | 41. C | 72. D | 103. B |
| 12. D | 42. B | 73. B | 104. A |
| 13. C | 43. A | 74. A | 105. C |
| 14. D | 44. D | 75. C | 106. B |
| 15. B | 45. D | 76. B | 107. C |
| 16. C | 46. B | 77. B | 108. C |
| 17. A | 47. B | 78. D | 109. A |
| 18. C | 48. A | 79. C | 110. A |
| 19. A | 49. B | 80. A | 111. B |
| 20. C | 50. A | 81. C | 112. A |
| 21. B | 51. B | 82. D | 113. B |
| 22. B | 52. C | 83. A | 114. D |
| 23. D | 53. C | 84. A | 115. D |
| 24. C | 54. D | 85. A | 116. 2-methyl
propane |
| 25. C | 55. B | 86. A | 117. 2,2-dimethyl
butane |
| 26. C | 56. B | 87. A | 118. 2,3-dimethyl -2
butene |
| 27. B | 57. A | 88. B | 119. 2,2,6-trimethyl
nonane |
| 28. D | 58. C | 89. B | 120. cycloheptane |
| 29. D | 59. C | 90. C | |
| 30. B | 60. B | 91. A | |
| | 61. D | 92. B | |