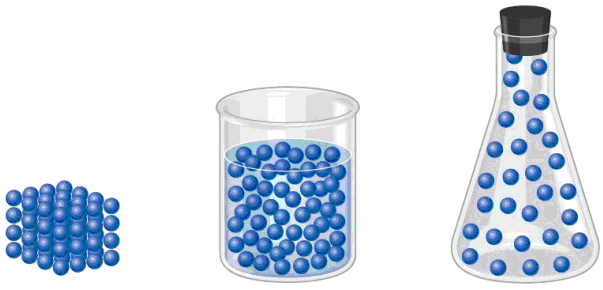
SNC1D Exam Review (Fall 2010)

Matching

Match the states of matter to the diagrams.

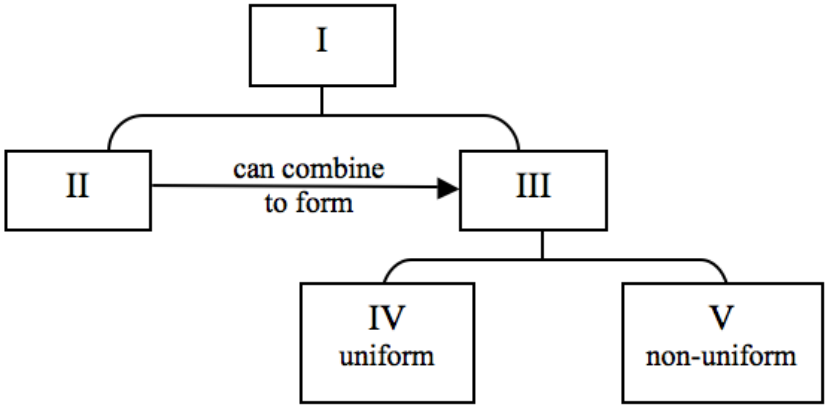
a. diagram 1
b. diagram 2
c. diagram 3

____ 1. solid
____ 2. gas
____ 3. liquid



Match the terms to the boxes to create the most logical arrangement possible.

a. box I
b. box II
c. box III
d. box IV
e. box V



____ 4. mechanical mixtures
____ 5. matter
____ 6. solutions
____ 7. pure substances
____ 8. mixtures

Match each statement to its related property. Use each choice only once.

a. lustre
b. optical clarity
c. brittleness
d. viscosity
e. hardness
f. malleability
g. ductility
h. electrical conductivity

____ 9. You cannot see through a brick, but you can see through a window.
____ 10. Copper and aluminum are easily drawn out into wires.
____ 11. A smooth, polished metal surface is shiny and can be used as a mirror.
____ 12. Striking a large sodium chloride crystal with a hammer shatters the crystal.
____ 13. Gold can be hammered into sheets as thin as tissue paper.
____ 14. A bulb will not produce light when connected to a battery with nylon fishing line.
____ 15. A bar of soap is easily scratched with a fingernail.
____ 16. Honey pours much more slowly than alcohol.

Match the names of the changes of states to the transitions given. Use each choice only once.

a. melting
b. boiling
c. freezing

____ 17. solid to liquid
____ 18. liquid to solid
____ 19. liquid to gas

Match the scientist to a key experiment or discovery.

a. billiard ball model
b. the electron
c. first atomic theory
d. electron orbits
e. gold foil experiment
f. neutron

____ 20. Bohr
____ 21. Thomson
____ 22. Chadwick
____ 23. Rutherford
____ 24. Democritus
____ 25. Dalton

Match the clues to the elements. Use each choice only once.

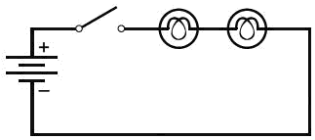
a. helium
b. beryllium
c. carbon
d. fluorine
e. neon
f. potassium
g. calcium

____ 26. This element has two electrons in its outer orbit, and it belongs to the second period.
____ 27. This element's most common isotope has a mass number of four and two neutrons per atom.
____ 28. This element has eight electrons in its outer orbit, which is the second orbit.
____ 29. The outermost electrons of this element lie in the fourth orbit, and it has chemical properties similar to magnesium.
____ 30. This element has four electrons in its outermost orbit, and it has the smallest atomic mass of the elements in its group.
____ 31. This element's outermost electrons lie in the second orbit, and it is the most reactive non-metal in its period.
____ 32. This element is the most reactive metal of the top four elements in its group, and it has chemical properties similar to lithium.

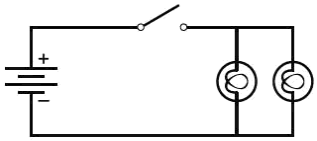
Categorize each diagram by matching it with the related term. Choices may be used more than once.

a. series circuit
b. parallel circuit

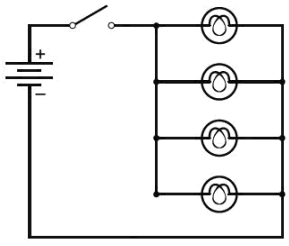
____ 33.

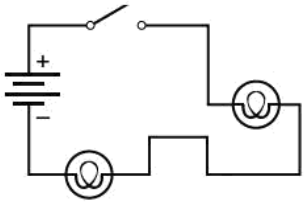


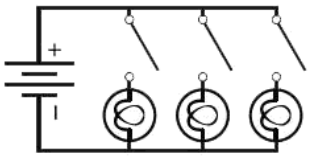
____ 34.

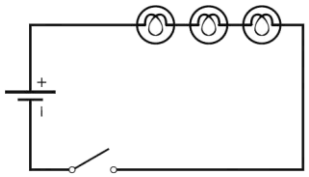


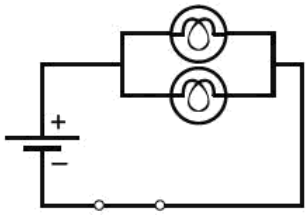
____ 35.



____ 36. 

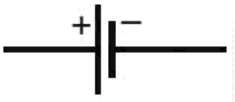
____ 37. 

____ 38. 

____ 39. 

Match each symbol to the related term. Choices will be used only once.

a. electric cell
b. three-cell battery
c. variable DC power supply
d. connecting wire
e. open switch
f. closed switch
g. lamp
h. electric motor

____ 40. 

____ 41. 

____ 42. 

____ 43. 

____ 44. 

____ 45. 

____ 46. 

____ 47.

Match each description with the related term. Choices will be used only once.

a. electric current
b. ammeter
c. potential difference
d. voltmeter
e. electrical resistance
f. resistor
g. ohmmeter

____ 48. a device used to measure electric current
____ 49. a device used to measure potential difference
____ 50. a device used to measure resistance
____ 51. a measure of the rate of electron flow past a given point in a circuit
____ 52. a device that reduces the flow of electric current
____ 53. the ability of a material to oppose the flow of electric current
____ 54. voltage

Short Answer

55. Categorize some of the biotic and abiotic factors found in the hydrosphere.

56. Describe the difference between organisms that are producers and consumers.

57. Point out a beneficial ecological niche of a spider in an ecosystem.

58. Explain why a food web is more accurate than a food chain at describing what takes place in a sustaining ecosystem.

59. Predict what might happen if a consumer is removed from a food web representing an ecosystem.

60. Explain why there are fewer of the species at the top of the food chain than there are at the bottom.

61. Describe some ways in which climate change might affect the carbon cycle.

62. Anticipate and evaluate how a new species of insect that is introduced to a new ecosystem by humans, in order to control another type of insect, might become a negative thing.

63. Determine why a farmer fertilizing his field on a hillside might concern a fisherman that works on a lake many kilometres away.

64. Explain the various spheres that exist in the biosphere on Earth.

65. Create a flow chart of the categories that species at risk move through from normal populations to extinction.

66. After an oil spill on water, summarize the advantages and disadvantages of burning the oil.

67. Which two of the three states of matter (solid, liquid, gas) are very difficult to compress into a smaller volume? Explain your thinking.

68. Explain what a chemical property of matter is.

69. Explain why the formation of bubbles in boiling water on a stove is not a sign of a chemical change.

70. Give two signs that the decomposition of a dead plant in the forest is a chemical change.

71. In a flashlight bulb, is the light given off by the filament a sign that the filament is undergoing a chemical change? Defend your answer.

72. A candle is lit and placed on a tray so that all of the wax that drips down is caught in the tray. If the melted wax is collected in this manner, will the mass of the candle and tray change over time? Why or why not?

73. A student finds the mass of a steel marble to be 16.00 g. To find the volume of the marble he submerges it in 25 cm^3 of water and observes that the volume of the water rises to 27.0 cm^3.

    Calculate the density of the marble, showing your work fully.

74. A metal sample has a density of 12.0 g/cm^3 and a mass of 600 g. Calculate the volume of the metal sample, showing your work fully.

75. Describe how mechanical mixtures compare and contrast with solutions.

76. How did observations using cathode ray tubes lead to the discovery of the electron?

77. Why is J.J. Thomson's atomic model called the "plum pudding" model?

78. Of P_4, KF, C_6H_6, and Br_2, which substance most likely has ionic bonding? Explain your thinking.

79. Magnesium metal and aluminum metal both form an oxide compound at the surface just like rusting iron. Why don't magnesium metal and aluminum metal corrode and flake off like rusting iron?

80. Based on the pattern in the table, what would the formula be for the hydrocarbon pentane, which has five carbon atoms in each molecule? Describe your logic.

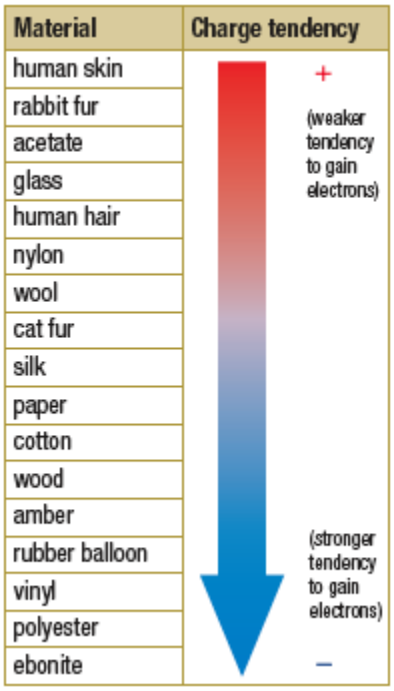
Hydrocarbon compound name	Chemical formula
methane	CH_4
ethane	C_2H_6
propane	C_3H_8
butane	C_4H_{10}

81. Which would be more likely to form: the compound NaF or the compound NaK? Explain.

82. In your own words, describe the difference between an ionic compound and a covalent compound.

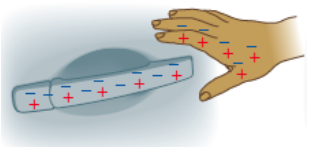
83. Explain why lithium atoms tend to lose only one electron when they combine with atoms of non-metals. Use Bohr-Rutherford diagrams in your answer.

84. Use the electrostatic series shown here to predict the charge of each object if cat hair comes into contact with wool.

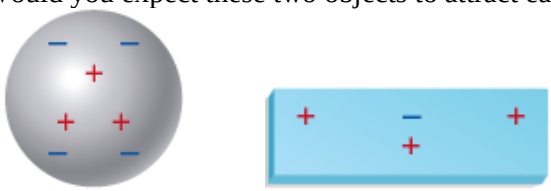


85. Summarize the reason for placing lightning rods on top of buildings.

86. What is the charge of the door handle shown in this picture? What is the charge of the hand? Describe what is likely to happen when the hand touches the door handle.

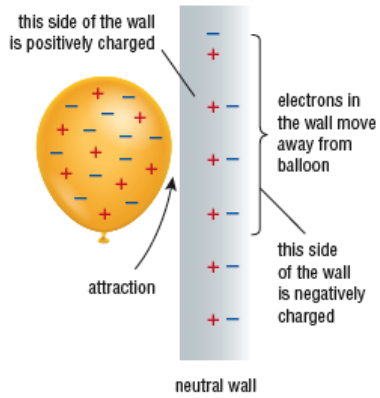


87. Would you expect these two objects to attract each other or repel each other? Explain your answer.

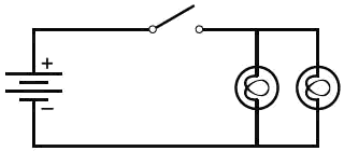


88. What is the difference between a conductor and an insulator?

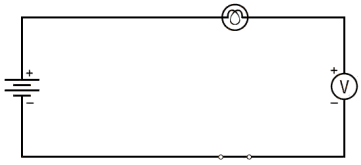
89. Use the following figure to describe why the balloon is attracted to the wall. What is the resulting charge on the wall?

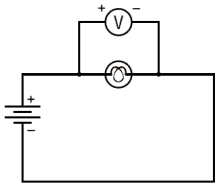


90. Create a list of steps that you would follow to draw a circuit diagram.
91. Sketch a circuit diagram of a circuit that contains a two-cell battery, two lamps, and an open switch connected in series.
92. Sketch a circuit diagram of a circuit that contains a two-cell battery, four lamps, and an open switch connected in parallel.
93. Is the following circuit series or parallel? Explain the reason for your answer.

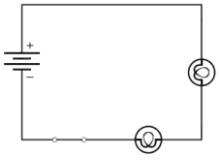


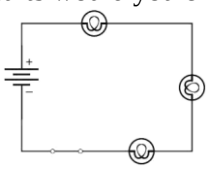
94. Which of the following circuit diagrams shows the correct way to connect a voltmeter to a circuit? Explain your answer.

a. 

b. 

95. Summarize Ohm's Law.
96. Sketch a circuit diagram showing a two-cell battery, an open switch, and two lamps connected in series.
97. Explain how circuit breakers or fuses work to protect your home.
98. Which of the following circuits would you expect to have less resistance? Explain your answer.

a. 

b. 

99. Summarize how connecting multiple loads in series affects the total resistance and measure of electric current in a circuit.
100. Summarize how connecting multiple loads in parallel affects the total resistance of the circuit.