Exam

Name_____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

1) What is the physical state in which matter has a specific volume but does not have a specific shape? 1) _____

A) ice B) solid C) gas D) salts E) liquid

Answer: E

2) The law of constant composition applies to _____. 2) _____

A) heterogeneous mixtures
B) solids
C) compounds
D) homogeneous mixtures
E) solutions

Answer: C

3) A combination of sand, salt, and water is an example of a _____. 3) _____

A) homogeneous mixture
B) heterogeneous mixture
C) solid
D) compound
E) pure substance

Answer: B

4) A small amount of salt dissolved in water is an example of a _____. 4) _____

A) compound
B) homogeneous mixture
C) solid
D) pure substance
E) heterogeneous mixture

Answer: B

5) Which one of the following has the element name and symbol correctly matched? 5) _____

A) S, sodium B) B, bromine C) Fe, iron D) N, neon E) Tn, tin

Answer: C

6) Which one of the following elements is identified by the chemical symbol, Al? 6) _____

A) tin B) lead C) aluminum D) mercury E) copper

Answer: C

7) Which one of the following is often separated into its components by simple techniques such as filtering or decanting? 7) _____

A) homogeneous mixture
B) solutions
C) elements
D) compounds
E) heterogeneous mixture

Answer: E

8) Which states of matter are significantly compressible? 8) _____

A) liquids and gases
B) liquids only
C) gases only
D) solids and liquids
E) solids only

Answer: C

9) For which of the following, can the composition vary? 9) _____

A) element
B) homogeneous mixture
C) both homogeneous and heterogeneous mixtures
D) pure substance
E) heterogeneous mixture

Answer: C

10) If matter is uniform throughout and cannot be separated into other substances by physical means, it is _____. 10) _____

A) a homogeneous mixture
B) a heterogeneous mixture
C) either an element or a compound
D) an element
E) a compound

Answer: C

11) An element cannot _____. 11) _____

A) interact with other elements to form compounds
B) be part of a heterogeneous mixture
C) be separated into other substances by chemical means
D) be a pure substance
E) be part of a homogeneous mixture

Answer: C

12) Homogeneous mixtures are also known as _____. 12) _____

A) substances
B) elements
C) compounds
D) solids
E) solutions

Answer: E

13) The law of constant composition says _____. 13) _____

A) that all substances have the same composition
B) that the composition of a heterogeneous mixture is always the same
C) that the composition of a homogeneous mixture is always the same
D) that the composition of a compound is always the same
E) that the composition of an element is always the same

Answer: D

14) Which of the following is an illustration of the law of constant composition? 14) _____

A) Water is a compound.
B) Water boils at 100 °C at 1 atm pressure.
C) Water is 11% hydrogen and 89% oxygen by mass.
D) Water and salt have different boiling points.
E) Water can be separated into other substances by a chemical process.

Answer: C

15) In the following list, only _____ is not an example of a chemical reaction. 15) _____

A) the formation of polyethylene from ethylene
B) the condensation of water vapor
C) the rusting of iron
D) dissolution of a penny in nitric acid
E) a burning candle

Answer: B

16) Gases and liquids share the property of _____. 16) _____

A) definite volume
B) definite shape
C) incompressibility
D) indefinite shape
E) compressibility

Answer: D

17) Of the following, only _____ is a chemical reaction. 17) _____

A) dissolving sugar in water
B) tarnishing of silver
C) melting of lead
D) dropping a penny into a glass of water
E) crushing of stone

Answer: B

18) Which one of the following is not an intensive property? 18) _____

A) temperature
B) boiling point
C) melting point
D) density
E) mass

Answer: E

19) Which one of the following is an intensive property? 19) _____

A) mass
B) temperature
C) amount
D) volume
E) length

Answer: B

20) Of the following, only _____ is an extensive property. 20) _____

A) boiling point
B) freezing point
C) volume
D) temperature
E) density

Answer: C

21) Which of the following are chemical processes? 21) _____

1. rusting of a nail
2. freezing of water
3. decomposition of water into hydrogen and oxygen gases
4. compression of oxygen gas

A) 1, 4 B) 1, 3, 4 C) 2, 3, 4 D) 1, 3 E) 1, 2

Answer: D

22) In the following list, only _____ is not an example of a chemical reaction. 22) _____

A) the production of hydrogen gas from water
B) burning a plastic water bottle
C) the tarnishing of a copper penny
D) charging a cellular phone
E) chopping a log into sawdust

Answer: E

23) Of the following, _____ is the largest mass. 23) _____

A) 2.5×10^{-2} mg
B) 25 kg
C) 2.5×10^{15} pg
D) 2.5×10^{10} ng
E) 2.5×10^{9} fg

Answer: B

24) Which one of the following is the highest temperature? 24) _____

A) 302 K
B) 38 °C
C) 96 °F
D) none of the above
E) the freezing point of water

Answer: B

25) Which of the following is (are) the lowest temperature? 25) _____

A) The freezing point of water
B) 30 °F
C) 280 K
D) 5 °C
E) A and D

Answer: B

26) Which one of the following is true about the liter? 26) _____

A) It is slightly smaller than a quart.
B) It is slightly smaller than a gallon.
C) It is the SI base unit for volume.
D) It contains 10^6 cubic centimeters.
E) It is equivalent to a cubic decimeter.

Answer: E

27) Which of the items below would be considered the most dense? 27) _____

A) a tire with a volume of 2.12 L and a mass of 4.22×10^4 mg
B) a wire with a volume of 3.91×10^{-7} L and a mass of 7.93×10^{-1} ng
C) a ball with a volume of 139 mL and a mass of 93 g
D) a piece of wood with a volume of 2.5 L and a mass of 12.5 kg
E) a block of metal with a volume of 1350 mL and a mass of 1.29×10^3 g

Answer: D

28) Which calculation clearly shows a conversion between temperatures in degrees Celsius, °C, and temperature in Kelvins, K? 28) _____

A) K = [°C - 32] / 1.8
B) K = °C
C) K = [°C + 32] × 1.8
D) K = 273.15 - °C
E) K = °C + 273.15

Answer: E

29) You have to calculate the mass of a 30.0 mL liquid sample with density of 1.52 g/mL, but you have forgotten the formula. Which way of reasoning would help you in finding the correct mass? 29) _____

A) If 1 mL of a liquid has the mass of 1.52 g, then 30.0 mL has the mass of _____ g.
B) If 1.52 mL of a liquid has the mass of 1 g, then 30.0 mL has the mass of _____ g.

Answer: A

30) You have to calculate the volume of a gas sample with mass of 1.000×10^3 g and density of 1.027 g/L, but you have forgotten the formula. Which way of reasoning would help you in finding the correct mass? 30) _____

A) If 1.027 g of a gas takes up a volume of 1 L, then 1.000×10^3 g of the same gas takes up a volume of _____.
B) If 1.027 L of gas has a mass of 1 g, then _____ L has the mass of 1.000×10^3 g.

Answer: A

31) Osmium has a density of 22.6 g/cm^3. What volume (in cm^3) would be occupied by a 21.8 g sample of osmium? 31) _____

A) 1.04 B) 493 C) 2.03×10^3 D) 2.03×10^{-3} E) 0.965

Answer: E

32) Iron has a density of 7.9 g/cm^3. What is the mass of a cube of iron with the length of one side equal to 55.0 mm? 32) _____

A) 2.3×10^{-2} g
B) 2.1×10^4 g
C) 1.3×10^3 g
D) 1.4 g
E) 4.3×10^2 g

Answer: C

33) Precision refers to _____. 33) _____

A) how close a measured number is to infinity
B) how close a measured number is to the calculated value
C) how close a measured number is to zero
D) how close a measured number is to the true value
E) how close a measured number is to other measured numbers

Answer: E

34) Accuracy refers to _____. 34) _____

A) how close a measured number is to zero
B) how close a measured number is to the true value
C) how close a measured number is to the calculated value
D) how close a measured number is to infinity
E) how close a measured number is to other measured numbers

Answer: B

35) Which of the following has the same number of significant figures as the number 1.00310? 35) _____

A) 11.762 B) 1×10^6 C) 199.791 D) 8.66 E) 5.119

Answer: C

36) Acceleration due to gravity of a free-falling object is 9.8 m/s^2. Express this in millimeters/millisecond^2. 36) _____

A) 9.8 B) 9.8×10^{-6} C) 9.8×10^3 D) 9.8×10^{-3} E) 9.8×10^{-9}

Answer: D

37) If an object is accelerating at a rate of 25 m/s^2, how long (in seconds) will it take to reach a speed of 550 m/s? (Assume an initial velocity of zero.) 37) _____

A) 0.045 B) 1.4×10^4 C) 2.3×10^2 D) 1.2×10^4 E) 22

Answer: E

38) If an object is traveling at a speed of 400 m/s, how long (in hours) will it take to reach 950.5 km? 38) _____

A) 6.34 B) 7.01×10^{-6} C) 39.6 D) 3.96×10^{-2} E) 1.43×10^5

Answer: C

39) A wooden object has a mass of 10.782 g and occupies a volume of 13.72 mL. What is the density of the object determined to an appropriate number of significant figures? 39) _____

A) 8×10^{-1} g/mL
B) 7.9×10^{-1} g/mL
C) 7.86×10^{-1} g/mL
D) 7.859×10^{-1} g/mL
E) 7.8586×10^{-1} g/mL

Answer: D

40) Expressing a number in scientific notation _____. 40) _____

A) removes ambiguity as to the significant figures
B) removes significant zeros
C) allows an increase in the number's precision
D) changes its value
E) all of the above

Answer: A

41) The number with the most significant zeros is _____. 41) _____

A) 250000001
B) 2.501×10^{-7}
C) 0.00002510
D) 2.5100000
E) 0.02500001

Answer: A

42) How many significant figures should be retained in the result of the following calculation? 42) _____

$$12.00000 \times 0.9893 + 13.00335 \times 0.0107$$

A) 2 B) 3 C) 4 D) 5 E) 6

Answer: C

43) In which one of the following numbers are <u>all</u> of the zeros significant? 43) _____

A) 0.1 B) 0.0010 C) 0.143290 D) 0.0001 E) 100.090090

Answer: E

44) Which of the following is <u>not</u> an exact number? 44) _____

A) the number of seconds in a year
B) the number of grams in a kilogram
C) the number of liters in a gallon
D) the number of centimeters in an inch
E) the number of millimeters in a kilometer

Answer: C

45) Round the number 0.007222 to three significant figures. 45) _____

A) 0.007 B) 0.00722 C) 0.0072 D) 0.007225 E) 0.00723

Answer: B

46) Round the number 3456.5 to two significant figures. 46) _____

A) 3400 B) 3000 C) 3500 D) 3000.0 E) 3400.0

Answer: C

47) Convert 1 cm^3 to $Å^3$. 47) _____

A) 10^{-30} B) 10^{-9} C) 10^{-24} D) 10^{30} E) 10^{24}

Answer: E

48) Solids have a _____ shape and are _____. 48) _____

A) sharp, convertible
B) definite, incompressible
C) indefinite, incompressible
D) indefinite, compressible
E) definite, compressible

Answer: B

49) _____ is the chemical symbol for elemental sodium. 49) _____

A) W B) Sn C) S D) Na E) So

Answer: D

50) If matter is uniform throughout and cannot be separated into other substances by physical processes, but can be decomposed into other substances by chemical processes, it is called a(n) _____. 50) _____

A) mixture of elements
B) heterogeneous mixture
C) element
D) homogeneous mixture
E) compound

Answer: E

51) A separation process that depends on differing abilities of substances to form gases is called _____. 51) _____

A) solvation
B) distillation
C) filtration
D) chromatography
E) All of the above are correct.

Answer: B

52) The initial or tentative explanation of an observation is called a(n) _____. 52) _____

A) experiment B) law C) test D) theory E) hypothesis

Answer: E

53) A statement or mathematical equation which is based on repeated observations is called a(n) _____. 53) _____

A) theory B) hypothesis C) law D) experiment E) test

Answer: C

54) The SI unit for mass is _____. 54) _____

A) gram
B) kilogram
C) troy ounce
D) pound
E) none of the above

Answer: B

55) A difference in one degree of temperature is the smallest on the _____ temperature scale. 55) _____

A) Fahrenheit and Celsius
B) Celsius
C) Kelvin
D) Fahrenheit
E) Kelvin and Celsius

Answer: D

56) _____ is the abbreviation for the prefix mega-. 56) _____

A) n B) m C) k D) M E) d

Answer: D

57) _____ is the abbreviation for the prefix milli-. 57) _____

A) n B) m C) k D) d E) M

Answer: B

58) A common English set of units for expressing velocity is miles/hour. The SI unit for velocity is _____. 58) _____

A) km/hr B) km/s C) m/s D) cm/s E) m/hr

Answer: C

59) The density of a gold nugget is 19.3 g/cm^3. If the volume of the gold nugget is 0.00369 L, the mass of the nugget is _____ g. 59) _____

A) 19.3
B) 71.2
C) 0.191
D) 5.23
E) none of the above

Answer: B

60) The length of the side of a cube having a density of 12.6 g/ml and a mass of 7.65 g is _____ cm. 60) _____

A) 1.65 B) 0.847 C) 0.607 D) 1.18 E) 4.58

Answer: B

61) The unit of force in the English measurement system is $\frac{lb \cdot ft}{s^2}$. The SI unit of force is the 61) _____

Newton, which is _____ in base SI units.

A) $\frac{kg \cdot m}{hr^2}$ B) $\frac{g \cdot m}{s^2}$ C) $\frac{kg \cdot m}{s^2}$ D) $\frac{g \cdot cm}{s}$ E) $\frac{g \cdot cm}{s^2}$

Answer: C

62) The SI unit for momentum is _____. 62) _____

A) $\frac{g \cdot m}{s}$ B) $\frac{kg \cdot m}{hr}$ C) $\frac{kg \cdot km}{hr}$ D) $\frac{kg \cdot m}{s}$ E) $\frac{g \cdot km}{s}$

Answer: D

63) The SI unit of temperature is _____. 63) _____

A) t B) K C) °F D) T E) °C

Answer: B

64) The freezing point of water at 1 atm pressure is _____. 64) _____

A) 0 °F B) 0 °C C) -32 °F D) -273 °C E) 0 K

Answer: B

65) A temperature of _____ K is the same as 63 °F. 65) _____

A) 290 B) 17 C) 336 D) 276 E) 29

Answer: A

66) 1 nanometer = _____ picometers 66) _____

A) 1000 B) 1×10^{6} C) 10 D) 0.001 E) 1×10^{-6}

Answer: A

67) 1 picometer = _____ centimeters 67) _____

A) 1×10^{10} B) 1×10^{-10} C) 1×10^{8} D) 1×10^{-12} E) 1×10^{-8}

Answer: B

68) 1 kilogram = _____ milligrams 68) _____

A) 10,000

B) 1,000

C) 1×10^{-6}

D) 1,000,000

E) none of the above

Answer: D

69) "Absolute zero" refers to _____. 69) _____

A) 0° Fahrenheit

B) °C + 9/5(°F - 32)

C) 273.15 °C

D) 0° Celsius

E) 0 Kelvin

Answer: E

70) The density (in g/cm^3) of a gold nugget that has a volume of 1.68 cm^3 and a mass of 32.4 g is _____. 70) _____

A) 0.0519 B) 19.3 C) 32.4 D) 54.4 E) 0.0184

Answer: B

71) A certain liquid has a density of 2.67 g/cm^3. 1340 g of this liquid would occupy a volume of _____ L. 71) _____

A) 1.99×10^{-3} B) 3.58 C) 35.8 D) 50.2 E) 0.502

Answer: E

72) A certain liquid has a density of 2.67 g/cm^3. 30.5 mL of this liquid would have a mass of _____ Kg. 72) _____

A) 81.4 B) 0.0814 C) 0.0875 D) 11.4 E) 0.0114

Answer: B

73) Osmium has a density of 22.6 g/cm^3. The mass of a block of osmium that measures 1.01 cm × 0.233 cm × 0.648 cm is _____ g. 73) _____

A) 6.75×10^{-3} B) 148 C) 6.75×10^3 D) 3.45 E) 34.5

Answer: D

74) 3.337 g/cm^3 = _____ kg/m^3 74) _____

A) 3.337×10^{-9}

B) 0.3337

C) 333.7

D) 3.337×10^{-5}

E) 3337

Answer: E

75) What is the volume in cm^3 of a perfect cube if one edge length measures 1.95 m? 75) _____

A) 7.41×10^6 B) 7.41 C) 195 D) 3.80×10^6 E) 3.80

Answer: A

76) A cube has a volume of 856 mL. What would be the length of one edge (in cm)? 76) _____

A) 856 B) 9.49×10^{-2} C) 29.3 D) 94.9 E) 9.49

Answer: E

77) 45 m/s = _____ km/hr 77) _____

A) 2.7×10^3 B) 1.6×10^5 C) 0.045 D) 1.6×10^2 E) 2.7

Answer: D

78) A baseball is thrown at a velocity of 98.4 miles per hour. What is the speed in m/s? 78) _____

A) 2.65×10^3 B) 44.1 C) 1.59×10^5 D) 5.72×10^8 E) 2.21×10^2

Answer: B

79) The correct answer (reported to the proper number of significant figures) to the following is _____. 79) _____

6.3 × 3.25 = _____

A) 20.475 B) 20.5 C) 21 D) 20.48 E) 20.

Answer: E

80) The correct answer (reported to the proper number of significant figures) to the following is _____. 80) _____

(2.01)(6.936) / 12 = _____

A) 1.1618
B) 1.2
C) 1.162
D) 1.16
E) none of the above

Answer: B

81) The correct answer (reported to the proper number of significant figures) to the following is _____. 81) _____

12.75 × 1.3621 = _____

A) 17.40 B) 17.0 C) 17.367 D) 17.4 E) 17.37

Answer: E

82) The correct answer (reported to the proper number of significant figures) to the following is _____. 82) _____

(12.67 + 19.2)(3.99) / (1.36 + 11.366) = _____

A) 9.999
B) 9.99851
C) 1.00×10^1
D) 9.9985
E) none of the above

Answer: C

83) The number 1.00430 has _____ significant figures. 83) _____

A) 2 B) 5 C) 6 D) 3 E) 4

Answer: C

84) The correct result (indicating the proper number of significant figures) of the following addition is _____. 84) _____

$$\begin{array}{r} 12 \\ 1.2 \\ 0.12 \\ +\ 0.012 \\ \hline \end{array}$$

A) 13
B) 13.3
C) 13.33
D) 13.332
E) none of the above

Answer: A

85) The correct result (indicating the proper number of significant figures) of the following problem is _____. 85) _____

$$\frac{(0.002843)\ (12.80184)}{0.00032}$$

A) 113.736 B) 113.74 C) 1.1×10^2 D) 113.7 E) 113.73635

Answer: C

86) The correct result (indicating the proper number of significant figures) of the following calculation of the molecular mass for H_2SO_4 is _____. 86) _____

$$4 \times 15.9994 + 32.066 + 2 \times 1.0079$$

A) 98.08 B) 98.84 C) 98.074 D) 98.838 E) 98.079

Answer: E

87) The volume of a regular cylinder is $V = \pi r^2 h$. What is the volume (cm^3) of a cylinder of radius 2.34 cm and height 19.91 cm expressed to the correct number of significant figures? 87) _____

A) 342.495 B) 342.49471 C) 342 D) 342.49 E) 343

Answer: C

88) There are _____ significant figures in the answer to the following computation: 88) _____

$$\frac{(29.2 - 20.0)\ (1.79 \times 10^5)}{1.39}$$

A) 1 B) 2 C) 3 D) 4 E) 5

Answer: B

89) There should be _____ significant figures in the answer to the following computation. 89) _____

$$\frac{(10.07 + 7.395)}{2.5}$$

A) 1 B) 2 C) 3 D) 4 E) 5

Answer: B

90) _____ significant figures should be retained in the result of the following calculation. 90) _____

$$\frac{(11.13 - 2.6) \times (3.8 \times 10^{4})}{(103.05 + 16.9) \times (1.2 \times 10^{-6})}$$

A) 1 B) 2 C) 3 D) 4 E) 5

Answer: B

91) The density of a 167.4 g sample of magnesium having a volume of 96.32 mL is _____ g/cm^3. 91) _____

A) 3.625 B) 25.26 C) 1.738 D) 16120 E) 0.5754

Answer: C

92) A 210. lbs person is required to take a medication at a dose of 5.00 mg per kg of body weight twice a day. How much medication would the person take in a 24 hour period? (Indicate the number in proper scientific notation with the appropriate number of significant figures.) 92) _____

A) 9.55×10^{2} B) 4.77×10^{2} C) 9.55×10^{1} D) 1.05×10^{3} E) 2.10×10^{3}

Answer: A

93) The density of mercury is 13.6 g/cm^3. The density of mercury is _____ kg/m^3. 93) _____

A) 1.36×10^{8} B) 1.36×10^{-4} C) 1.36×10^{-2} D) 1.36×10^{4} E) 1.36×10^{-5}

Answer: D

94) The distance from the Earth to the Moon is approximately 240,000 miles. If a rocket travels at a speed of 7.50 km/sec, it will take _____ days to travel between the Earth and Moon. 94) _____

A) 0.60 B) 5.6 C) 33.5 D) 0.23 E) 6.0

Answer: A

95) 1.55 kg/m^3 is equivalent to _____ g/L. 95) _____

A) 1.55×10^{-6} B) 1.55 C) 1.55×10^{3} D) 1.55×10^{6} E) 1.55×10^{-3}

Answer: B

96) An iron mine produces 2.18×10^{5} US tons of raw ore on a daily basis which contains 21.47% elemental iron. How many pounds of elemental iron would the mine produce over a span of one year? (Assume the mine operates 365 days per year.) (1 US ton = 2000 lbs.) 96) _____

A) 1.71×10^{7} B) 3.42×10^{10} C) 1.59×10^{11} D) 7.96×10^{7} E) 4.68×10^{4}

Answer: B

97) A 4.369 g sample of metal is placed in a flask. Water is added to the flask and the total volume in the flask is read to be 126.4 ml. The mass of the water, flask, and metal is 268.5 g. If the mass of the flask is 139.3 g and the density of water is 1.000 g/mL, the density of the solid is _____ g/cm^3. 97) _____

A) 2.78 B) 1.56 C) 3.21 D) 0.366 E) 0.641

Answer: A

98) The quantity 1.0 mg/cm^2 is the same as 1.0 × _____ kg/m^2. 98) _____

A) 10^{-2} B) 10^{4} C) 10^{2} D) 10^{-6} E) 10^{-4}

Answer: A

99) A rectangular water tank is 14.5 cm long and 4.63 cm wide. If 368.5 g of water completely fills the tank, the height of the tank is _____ cm. (Assume the density of water is 1.000 g/ml.) 99) _____

A) 0.182 B) 5.49 C) 29.1 D) 165 E) 24700

Answer: B

100) There are _____ ng in a pg. 100) _____

A) 1000 B) 0.01 C) 100 D) 10 E) 0.001

Answer: E

101) One edge of a cube is measured and found to be 13 cm. The volume of the cube in m^3 is _____. 101) _____

A) 2.2 B) 2.2×10^{-3} C) 2.2×10^{-6} D) 2.2×10^{3} E) 2.2×10^{6}

Answer: B

102) The density of lead is 11.4 g/cm^3. The mass of a lead ball with a radius of 0.50 mm is _____ g. ($V_{sphere} = 4\pi r^3/3$) 102) _____

A) 4.6 B) 6.0 C) 4.6×10^{-5} D) 4.6×10^{-2} E) 6.0×10^{-3}

Answer: E

103) In the following list, only _____ is not an example of matter. 103) _____

A) mouse B) heat C) flower D) book E) neon

Answer: B

104) The symbol for the element platinum is _____. 104) _____

A) K B) S C) Pt D) Ca E) P

Answer: C

105) The element hydrogen has the symbol _____. 105) _____

A) K B) Ar C) B D) He E) H

Answer: E

106) Which one of the following has the element name and symbol correctly matched? 106) _____

A) Be, beryllium
B) Si, sulfur
C) Ne, nitrogen
D) Ca, carbon
E) None of the symbols are correctly matched to the element name.

Answer: A

107) Which one of the following is a pure substance? 107) _____

A) tap water
B) elemental oxygen
C) rock
D) air
E) apple

Answer: B

108) The symbol for the element neon is _____. 108) _____

A) Rb B) Mg C) Si D) Mn E) Ne

Answer: E

109) The symbol for the element sodium is _____. 109) _____

A) Hg B) Me C) Pb D) Na E) Sn

Answer: D

110) Express the temperature, 275.18 K, in degrees Celsius. 110) _____

A) 120.88 °C B) 274.17 °C C) 22.78 °C D) 548.33 °C E) 2.03 °C

Answer: E

111) The temperature of 25 °C is _____ in Kelvins. 111) _____

A) 138 B) 103 C) 298 D) 166 E) 248

Answer: C

112) An object will sink in a liquid if the density of the object is greater than that of the liquid. The mass of a sphere is 9.83 g. If the volume of this sphere is less than _____ cm^3, then the sphere will sink in liquid mercury (density = 13.6 g/cm^3). 112) _____

A) 7.48
B) 1.38
C) 134
D) 0.723
E) none of the above

Answer: D

113) What decimal power does the abbreviation d represent? 113) _____

A) 1×10^{-1} B) 1×10^{3} C) 1×10^{-9} D) 10 E) 1×10^{-2}

Answer: A

114) An object measuring 25.0 inches will have a length of _____ centimeters. 114) _____

A) 63.5 B) 0.102 C) 9.84 D) 0.0158 E) 2.54

Answer: A

115) An object measuring 0.4500 kilograms will have a mass of _____ grams. 115) _____

A) 0.0004500 B) 4.500 C) 45.00 D) 450.0 E) 2222

Answer: D

116) An object measuring 77 milliliters will have a volume of _____ liters. 116) _____

A) 0.077 B) 770 C) 13 D) 7700 E) 77000

Answer: A

117) An object measuring 0.76 decimeters will have a length of _____ centimeters. 117) _____

A) 7.6 B) 1100 C) 0.0076 D) 0.00076 E) 0.076

Answer: A

118) The prefix giga is represented by the following notation _____. 118) _____

A) 1×10^{9} B) 1×10^{-9} C) 1×10^{3} D) 1×10^{-3} E) 1×10^{-1}

Answer: A

119) A temperature of 290. K is the same as _____ °F. 119) _____

A) 81 B) 711 C) 260 D) 63 E) 351

Answer: D

120) A temperature of 10.00 °C is the same as _____ °F. 120) _____

A) 283.15 B) -12.22 C) -263.15 D) 50.00 E) 32.18

Answer: D

121) A temperature of 100. °F is the same as _____ °C. 121) _____

A) 212 B) 373 C) 700. D) 38 E) -173

Answer: D

122) A temperature of 55.0 °F is the same as _____ °C. 122) _____

A) 12.8 B) 131.0 C) 32.0 D) -218.2 E) 328.2

Answer: A

123) Which of the following mass measurements is the smallest? 123) _____

A) 78 kg B) 78 pg C) 78 ng D) 78 mg E) 78 fg

Answer: E

124) Which of the following mass measurements is the largest? 124) _____

A) 123.20 Mg B) 123.20 Gg C) 123.20 dg D) 123.20 Tg E) 123.20 g

Answer: D

125) What is the volume (in cm^3) of a 36.7 g piece of metal with a density of 6.95 g/cm^3? 125) _____

A) 255 B) 1.74 C) 6.34 D) 5.28 E) 0.189

Answer: D

126) The density of silver is 10.5 g/cm^3. A piece of silver with a mass of 61.3 g would occupy a volume of _____ cm^3. 126) _____

A) 0.00155 B) 0.171 C) 644 D) 10.5 E) 5.84

Answer: E

127) A cube of an unknown metal measures 0.250 cm on one side. The mass of the cube is 0.095 g. Which of the following is most likely the unknown metal? 127) _____

Metal	Density (g/cm^3)
rhodium	12.4
copper	8.96
niobium	8.57
vanadium	6.11
zirconium	6.51

A) niobium B) rhodium C) zirconium D) vanadium E) copper

Answer: D

128) Gold has a density of 0.01932 kg/cm^3. What volume (in cm^3) would be occupied by a 22.2 g sample of gold? 128) _____

A) 0.429 B) 0.000429 C) 16.81 D) 1.15 E) 0.870

Answer: D

129) Gold has a density of 0.01932 kg/cm^3. What is the mass (in kg) of a 92.5 cm^3 sample of gold? 129) _____

A) 92.5 B) 1.79 C) 0.000209 D) 0.560 E) 4790

Answer: B

130) The density of silver is 10.5 g/cm^3. A piece of silver that occupies a volume of 42.5 cm^3 would have a mass of _____ g. 130) _____

A) 446 B) 4.05 C) 7.64 D) 0.247 E) 23.6

Answer: A

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

131) The correct answer (reported to the proper number of significant figures) to the following is _____. 131) _____

$7.3 \times 4.68 =$ _____

Answer: 34

132) The correct answer (reported to the proper number of significant figures) to the following is _____. 132) _____

$(1501-1496) \times (9.18 \times 3.68) =$ _____

Answer: 200

133) If an object weighs 38.325 lbs, what would be the mass in grams? (2.20 lbs = 1 kg) 133) _____

Answer: 17400

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

134) Which of the following has the same number of significant figures as the number 0.0050? 134) _____

A) 0.9 B) 99.000 C) 601 D) 4.0 E) 1.00

Answer: D

135) How many Significant Figures does the number 0.005000 have? 135) _____

A) 5 B) 2 C) 4 D) 1 E) 3

Answer: C

136) The number 0.0101 has _____ significant figures. 136) _____

A) 5 B) 3 C) 6 D) 2 E) 4

Answer: B

137) In which one of the following numbers are none of the zeros significant? 137) _____

A) 10.0 B) 0.009 C) 0.00050 D) 103 E) 161.00

Answer: B

138) Round the number 0.00637 to two significant figures. 138) _____

A) 0.0063700 B) 0.006 C) 0.00637 D) 0.0 E) 0.0064

Answer: E

139) How many significant figures are in the number 30.80? 139) _____

A) 3 B) 2 C) 0 D) 1 E) 4

Answer: E

140) How many significant figures are in the measurement 5000 g? 140) _____

A) 4 B) 1 C) 2 D) 3 E) 5

Answer: B

141) The number with the most significant zeros is _____. 141) _____

A) 0.00090 B) 0.008001 C) 90.300 D) 591 E) 0.08

Answer: C

142) What would be the volume of a box that measures 1.12 m × 1.00 m × 0.69 m? 142) _____

A) 0.7728 B) 0.773 C) 0.77280 D) 0.77 E) 0.772800

Answer: D

143) The estimated costs for remodelling the interior of an apartment are: three 1-gallon cans of paint at $15.44 each, two paint brushes at $12.22 each, and $145 for a helper. The total estimated cost with the appropriate significant figures is $_____. 143) _____

A) 215.76 B) 216 C) 215.8 D) 2.2×10^2 E) 2×10^2

Answer: B

144) Round the following number to four significant figures and express the result in standard exponential notation: 0.00222755 144) _____

A) 22.28×10^2

B) 0.002228

C) 2.228×10^3

D) 2.228×10^{-3}

E) 0.2228×10^{-2}

Answer: D

145) The quantity _____ m is the same as 4 km. 145) _____

A) 40 B) 0.04 C) 4000 D) 0.004 E) 400

Answer: C

146) How many liters of wine can be held in a wine barrel whose capacity is 30.0 gal? 146) _____

A) 7.93×10^3 B) 114 C) 7.93 D) 0.126 E) 1.26×10^{-4}

Answer: B

147) The recommended adult dose of Elixophyllin®, a drug used to treat asthma, is 6.00 mg/kg of body mass. Calculate the dose in milligrams for a 134-lb person. 147) _____

A) 13.2 B) 1773 C) 365 D) 3.6×10^5 E) 10.1

Answer: C

148) The density of air under ordinary conditions at 25 °C is 1.19 g/L. How many kilograms of air are in a room that measures 9.0 ft × 11.0 ft and has an 10.0 ft ceiling? 148) _____

A) 3.34×10^4 B) 0.124 C) 2.99 D) 0.0644 E) 33.4

Answer: E

149) Which of the following liquids has the greatest density? 149) _____

A) 0.022 cm^3 with a mass of 0.10 g

B) 54cm^3 with a mass of 45 g

C) 210 cm^3 with a mass of 12 g

D) 13cm^3 with a mass of 23 g

E) 3.5 cm^3 with a mass of 10 g

Answer: A

150) An inert atmosphere was obtained by adding nitrogen in a room that measures 11.0 ft × 11.0 ft and has a 8.00 ft ceiling. How many liters of nitrogen were used to fill the room? 150) _____

1 in. = 2.54 cm (exactly); 1 L = 10^3 cm^3

A) 9.14×10^5 B) 2.74×10^4 C) 2.95×10^7 D) 102 E) 29.5

Answer: B

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

151) Gases do not have a fixed _____ as they are able to be _____. 151) _____

Answer: volume, compressed

152) The symbol for the element phosphorus is _____. 152) _____

Answer: P

153) Sn is the symbol for the element _____. 153) _____

Answer: Tin

154) Si is the symbol for the element _____. 154) _____

Answer: Silicon

155) Cu is the symbol for the element _____. 155) _____

Answer: Copper

156) Mass and volume are often referred to as _____ properties of substances. 156) _____

Answer: extensive

157) 1 milligram = _____ micrograms 157) _____

Answer: 1,000

158) 1.035×10^{-4} L = _____ mL 158) _____

Answer: 0.1035

TRUE/FALSE. Write 'T' if the statement is true and 'F' if the statement is false.

159) Water is considered to be a diatomic molecule because it is composed of two different atoms. 159) _____

Answer: True False

160) A scientific law is a concise statement or an equation that summarizes a broad variety of observations. 160) _____

Answer: True False

161) $3.2\ cm^3 = 0.0032$ L 161) _____

Answer: True False

162) Temperature is a physical property that determines the direction of heat flow. 162) _____

Answer: True False

163) There are 6 significant figures in the number 0.003702. 163) _____

Answer: True False