General Organic and Biochemistry 9th Edition Denniston Test Bank

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- 1. Which is the summary of a large amount of scientific information?
- A. hypothesis
- B. theory
- C. scientific law
- D. technology
- E. scientific method

Accessibility: Keyboard Navigation Bloom's Level: 1. Remember Difficulty: Easy Gradable: automatic Section number: 01.01 Subtopic: Scientific Method Topic: Study of Chemistry

2. What method used by scientists is the systematic approach to the discovery of new information?

- A. analytical method
- B. hypothetical method
- C. chemical method
- D. technological method
- E. scientific method

Accessibility: Keyboard Navigation Bloom's Level: 1. Remember Difficulty: Easy Gradable: automatic Section number: 01.01 Subtopic: Scientific Method Topic: Study of Chemistry

Accessibility: Keyboard Navigation Bloom's Level: 1. Remember Difficulty: Easy Gradable: automatic Section number: 01.01

> Subtopic: Scientific Method Topic: Study of Chemistry

- 3. What is a hypothesis?
- A. a fact that results from extensive experimentation and testing
- B. the summary of a large quantity of information
- C. the result of a single measurement or observation
- D. an attempt to explain an observation, or a series of observations
- E. an observation of a chemical reaction

4. Which statement concerning the scientific method is FALSE?

- A. The scientific method is an organized approach to solving scientific problems.
- B. The process of explaining observed behavior begins with a hypothesis.
- C. Experimentation is conducted to either support or disprove a hypothesis.
- **D.** A hypothesis becomes a theory when a single experiment supports it.

E. A theory explains scientific observations and data and can help predict new observations and data.

Accessibility: Keyboard Navigation Difficulty: Easy Gradable: automatic Section number: 01.01 Subtopic: Scientific Method Topic: Study of Chemistry

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- 5. What type of change alters the appearance, but not the composition or identity of the substance undergoing the change?
- A. theoretical
- <u>B.</u> physical
- C. analytical
- D. chemical
- E. nuclear

Accessibility: Keyboard Navigation Bloom's Level: 1. Remember Difficulty: Easy Gradable: automatic Section number: 01.02 Subtopic: Changes in Matter Topic: Study of Chemistry

6. Which statement concerning changes in matter is FALSE?

- A. A physical change alters the appearance of a substance, but not its identity.
- B. A chemical change alters the identity of a substance.
- C. A chemical change always results in the production of a new substance.
- D. A chemical change is also called a chemical reaction.
- E. Melting and freezing are chemical changes that change both the appearance of the substance as well as the identity of the substance.

Accessibility: Keyboard Navigation Bloom's Level: 1. Remember Difficulty: Easy Gradable: automatic Section number: 01.02 Subtopic: Changes in Matter Topic: Study of Chemistry 7. Which process depicts a physical change?











E. None of the processes above depicts a physical change.

Bloom's Level: 2. Understand Difficulty: Medium Gradable: automatic Section number: 01.02 Subtopic: Changes in Matter Subtopic: Classification and States of Matter Topic: Study of Chemistry

- 8. What statement best describes an intensive property?
- <u>A.</u> A property of a substance that does not depend on the quantity of the substance present.
- B. A property of a substance that depends on the quantity of the substance present.
- C. A property of a substance that depends on the mass of the substance, but not the volume of the substance.
- D. A property of a substance that depends on the physical state (solid, liquid, or gas) of the substance.
- E. A property of a substance that changes based on the mass of the material that is present.

Accessibility: Keyboard Navigation Bloom's Level: 1. Remember Difficulty: Easy Gradable: automatic Section number: 01.02 Subtopic: Properties of Matter Topic: Study of Chemistry

- 9. Which statement concerning the classification of matter is FALSE?
- A. All matter is either pure substance or a compound.
- B. An element is a pure substance that generally cannot be changed into a simpler form of matter.
- C. A compound is a pure substance made up of two or more different elements combined in a definite, reproducible way.
- D. A pure substance is composed of only one type of component.
- E. A mixture is the physical combination of two or more pure substances in which each substance retains its own identity.

Accessibility: Keyboard Navigation Bloom's Level: 1. Remember Difficulty: Easy Gradable: automatic Section number: 01.02 Subtopic: Classification and States of Matter Topic: Study of Chemistry

- 10. When hydrogen (H2) and chlorine (Cl2) gases are mixed, hydrogen chloride (HCl) is produced. Hydrogen chloride is classified as what type of matter?
- A. an element
- **<u>B.</u>** a compound
- C. a homogeneous mixture
- D. a heterogeneous mixture
- E. a solution

Accessibility: Keyboard Navigation Bloom's Level: 2. Understand Difficulty: Easy Gradable: automatic Section number: 01.02 Subtopic: Changes in Matter Subtopic: Classification and States of Matter Topic: Study of Chemistry

- 11. Which of the following is NOT a type of mixture?
- A. homogeneous
- B. heterogeneous
- C. solution
- <u>**D.</u>** compound</u>
- E. All of the choices are correct.

Accessibility: Keyboard Navigation Bloom's Level: 2. Understand Difficulty: Easy Gradable: automatic Section number: 01.02 Subtopic: Classification and States of Matter Topic: Study of Chemistry 12. Which of the following terms best describes the sample of matter in the diagram? Note: different colored circles represent atoms of different elements.



- A. homogeneous mixture
- **B.** pure substance
- C. heterogeneous mixture
- D. solution
- E. None of the choices are correct.

Bloom's Level: 2. Understand Difficulty: Easy Gradable: automatic Section number: 01.02 Subtopic: Classification and States of Matter Topic: Study of Chemistry

13. Which diagram represents a mixture? Note: different colored circles represent atoms of different elements.









Bloom's Level: 2. Understand Difficulty: Medium Gradable: automatic Section number: 01.02 Subtopic: Classification and States of Matter Topic: Study of Chemistry 14. Which of the following terms is most appropriate when classifying an apple?

A. pure substance

- B. compound
- <u>C.</u> heterogeneous mixture
- D. homogeneous mixture
- E. solution

Accessibility: Keyboard Navigation Bloom's Level: 2. Understand Difficulty: Easy Gradable: automatic Section number: 01.02 Subtopic: Classification and States of Matter Topic: Study of Chemistry

15. 1 milligram is equivalent to how many grams?

- A. 1000
- B. 100
- C. 0.1
- D. 0.01
- <u>E.</u> 0.001

Accessibility: Keyboard Navigation Bloom's Level: 1. Remember Difficulty: Easy Gradable: automatic Section number: 01.03 Subtopic: Measurements (Metric and SI) Topic: Study of Chemistry

- 16. A typical aspirin tablet contains 5.00 grains of pure aspirin analgesic compound. The rest of the tablet is starch. How many aspirin tablets can be made from 50.0 g of pure aspirin? [Use: 1.00 g = 15.4 grains]
- A. 17 tablets
- B. 154 tablets
- C. 250 tablets
- D. 649 tablets
- E. 770 tablets

Accessibility: Keyboard Navigation Bloom's Level: 3. Apply Difficulty: Medium Gradable: automatic Section number: 01.05 Subtopic: Dimensional Analysis Topic: Study of Chemistry

- 17. A patient weighs 146 pounds and is to receive a drug at a dosage of 45.0 mg per kg of body weight. What mass of the drug should the patient receive? [1 pound = 454 g]
- A. 1.47 g
- <u>**B.</u> 2.98 g</u>**
- C. 3.24 mg
- D. 1470 mg
- E. 6570 mg

Accessibility: Keyboard Navigation Bloom's Level: 4. Analyze Difficulty: Hard Gradable: automatic Section number: 01.05 Subtopic: Dimensional Analysis Topic: Study of Chemistry

18. A patient weighs 146 pounds and is to receive a drug at a dosage of 45.0 mg per kg of body weight. The drug is supplied as a solution that contains 25.0 mg of drug per mL of solution. What volume of the drug should the patient receive? [1 pound = 454 g]

A. 0.579 mL

- <u>**B.**</u> 119 mL
- C. 362 mL
- D. 579 mL
- E. 119 L

Accessibility: Keyboard Navigation Bloom's Level: 4. Analyze Difficulty: Hard Gradable: automatic Section number: 01.05 Subtopic: Dimensional Analysis Topic: Study of Chemistry 19. If one atom of carbon-14 weighs 14.0 atomic mass units and one atomic mass unit is equal to 1.66 × 10⁻²⁴ grams, what is the mass of 25 atoms of carbon-14 in grams?

<u>A.</u> 5.81×10^{-22} B. 5.81×10^{-21} C. 581D. 2.11×10^{26} E. 2.11×10^{-21}

> Accessibility: Keyboard Navigation Bloom's Level: 3. Apply Difficulty: Medium Gradable: automatic Section number: 01.05 Subtopic: Dimensional Analysis Topic: Study of Chemistry

20. A student records the measurement 4.8 m. What type of measurement was made?

- A. mass
- B. volume
- C. length
- D. concentration
- E. time

Accessibility: Keyboard Navigation Bloom's Level: 2. Understand Difficulty: Easy Gradable: automatic Section number: 01.03 Subtopic: Measurements (Metric and SI Units) Topic: Study of Chemistry

21. A patient needs 0.300 g of a solid drug preparation per day. How many 10.0 mg tablets must be given to the patient per day?

A. 3 tablets

- B. 30 tablets
- C. 33 tablets
- D. 300 tablets
- E. 330 tablets

Accessibility: Keyboard Navigation Bloom's Level: 3. Apply Difficulty: Medium Gradable: automatic Section number: 01.05 Subtopic: Dimensional Analysis Topic: Study of Chemistry 22. What is the number 0.0062985632 written in scientific notation to three significant figures?

A. 0.006

В.

 6.00×10^{-3}

C.

 6.29×10^{-3}

D.

 6.299×10^{-3}

<u>E.</u>

 6.30×10^{-3}

Accessibility: Keyboard Navigation Bloom's Level: 3. Apply Difficulty: Easy Gradable: automatic Section number: 01.04 Subtopic: Scientific Notation and Significant Figures Topic: Study of Chemistry

23. What is the number 3,000 written in scientific notation using the proper number of significant figures?

A. 0.003×10^{-3} B. 0.3×10^{4} C. 3×10^{3} D. 3×10^{-3} E. 3.000×10^{3}

> Accessibility: Keyboard Navigation Bloom's Level: 3. Apply Difficulty: Easy Gradable: automatic Section number: 01.04 Subtopic: Scientific Notation and Significant Figures Topic: Study of Chemistry

24. What is the number 0.9050 written in scientific notation using the proper number of significant figures?

Α.

0.9 × 10⁴

В.

9 × 10⁻¹

C.

9.05 × 10⁻¹

D.

 9.050×10^4

<u>E.</u>

9.050 × 10⁻¹

Accessibility: Keyboard Navigation Bloom's Level: 3. Apply Difficulty: Easy Gradable: automatic Section number: 01.04 Subtopic: Scientific Notation and Significant Figures Topic: Study of Chemistry

25. How should the result of the calculation below be reported using scientific notation and the proper number of significant figures? (4.3169 $\times 10^4$) ÷ (2.02 $\times 10^3$) = ?

<u>A.</u>

2.14 × 10¹

В.

2.1371 × 10¹

C.

2.14 × 10²

D.

2.14 × 10⁷

Ε.

 2.1371×10^9

Accessibility: Keyboard Navigation Bloom's Level: 3. Apply Difficulty: Medium Gradable: automatic Section number: 01.04 Subtopic: Scientific Notation and Significant Figures Topic: Study of Chemistry

26. Which of the following measured volumes has the most uncertainty?

<u>A.</u> 10 mL

- B. 10.0 mL
- C. 10.00 mL
- D. 10.000 mL
- E. All values have the same degree of uncertainty.

Accessibility: Keyboard Navigation Bloom's Level: 2. Understand Difficulty: Easy Gradable: automatic Section number: 01.04 Subtopic: Scientific Notation and Significant Figures Topic: Study of Chemistry 27. Where is the uncertainty in the number 101.2°C?

- A. in the ones place
- B. in the tens place
- C. in the tenths place
- D. in the hundredths place
- E. There is no uncertainty in this number.

Accessibility: Keyboard Navigation Bloom's Level: 2. Understand Difficulty: Medium Gradable: automatic Section number: 01.04 Subtopic: Scientific Notation and Significant Figures Topic: Study of Chemistry

- 28. A flask contains 145.675 mL of a saline solution. If 24.2 mL of the saline solution are withdrawn from the flask, how should the volume of the saline solution that remains in the flask be reported?
- A. 121.475 mL
- B. 121.4 mL
- <u>C.</u> 121.5 mL
- D. 122 mL
- E. 121 mL

Accessibility: Keyboard Navigation Bloom's Level: 3. Apply Difficulty: Medium Gradable: automatic Section number: 01.04 Subtopic: Scientific Notation and Significant Figures Topic: Study of Chemistry

29. Which physical property of an astronaut will change depending on whether he or she is on Earth or in orbit?

- A. mass
- B. weight
- C. volume
- D. all would change
- E. none would change

Accessibility: Keyboard Navigation Bloom's Level: 2. Understand Difficulty: Easy Gradable: automatic Section number: 01.03 Subtopic: Measurements (Metric and SI Units) Topic: Study of Chemistry

30. What is the basic unit of volume in the metric system?

A. milliliter

- B. cubic centimeter
- <u>C.</u> liter
- D. gram
- E. millimeter

Accessibility: Keyboard Navigation Bloom's Level: 1. Remember Difficulty: Easy Gradable: automatic Section number: 01.03 Subtopic: Measurements (Metric and SI Units) Topic: Study of Chemistry 31. Which statement concerning energy is FALSE?

A. Energy is the amount of heat content in an object.

- B. Potential energy is stored energy due to composition or position.
- C. Kinetic energy is the energy associated with movement.
- D. Heat, light, and electricity are different forms of energy.
- E. Conversion of energy from one form to another is possible.

Accessibility: Keyboard Navigation Bloom's Level: 1. Remember Difficulty: Easy Gradable: automatic Section number: 01.06 Subtopic: Measurements (Metric and SI Units) Topic: Study of Chemistry

32. Which temperature would feel the hottest?

- <u>A.</u> 100°C
- B. 100°F
- C. 100 K
- D. All temperatures would feel equally hot.

Accessibility: Keyboard Navigation Bloom's Level: 4. Analyze Difficulty: Medium Gradable: automatic Section number: 01.06 Subtopic: Measurements (Metric and SI Units) Subtopic: Temperature Topic: Study of Chemistry

33. A chemical reaction releases 44.3 kJ of heat. What is the equivalent amount of heat expressed in calories? [1 cal = 4.18 J]

A. 10.6 cal

- B. 106 cal
- C. 185 cal
- <u>D.</u> 10,600 cal
- E. 18,500 cal

Accessibility: Keyboard Navigation Bloom's Level: 3. Apply Difficulty: Medium Gradable: automatic Section number: 01.06 Subtopic: Dimensional Analysis Subtopic: Measurements (Metric and SI Units) Topic: Study of Chemistry

- 34. A bolder at the top of a hill breaks free and rolls down the hill. Which statement best represents the change in energy that occurs in this process?
- A. The potential energy of the bolder increases.
- B. The potential energy of the bolder is converted to kinetic energy.
- C. The kinetic energy of the bolder is converted to potential energy.
- D. The chemical energy of the bolder is converted to kinetic energy.
- E. No change in energy occurs; energy cannot be converted from one form to another.

Accessibility: Keyboard Navigation Bloom's Level: 2. Understand Difficulty: Medium Gradable: automatic Section number: 01.06 Subtopic: Measurements (Metric and SI Units) Topic: Study of Chemistry

35. What kind of energy is stored as the result of position or composition?

- A. kinetic energy
- B. activation energy
- <u>C.</u> potential energy
- D. theoretical energy
- E. static energy

Accessibility: Keyboard Navigation Bloom's Level: 1. Remember Difficulty: Easy Gradable: automatic Section number: 01.06 Subtopic: Measurements (Metric and SI Units) Topic: Study of Chemistry

- 36. The concentration of a patient's blood sugar was determined to be 4850 micrograms per milliliter. Which correctly represents this measurement?
- A. 4850 µg /ML
- B. 4850 mg/mL
- C. 4850 Mg/mL
- <u>**D.</u> 4850 μg/mL</u></u>**
- E. 4850 mg/ML

Accessibility: Keyboard Navigation Bloom's Level: 2. Understand Difficulty: Easy Gradable: automatic Section number: 01.06 Subtopic: Measurements (Metric and SI Units) Topic: Study of Chemistry

37. What is density?

- A. the ratio of the number of particles of a substance to the volume of the solution in which it is dissolved
- **<u>B.</u>** the ratio of the mass of a substance to the volume of the substance
- \overline{C} . the ratio of the volume of a substance to the mass of the substance
- D. the ratio of the moles of a substance to the volume of the solution in which it is dissolved
- E. the measure of the amount of heat an object contains

Accessibility: Keyboard Navigation Bloom's Level: 1. Remember Difficulty: Easy Gradable: automatic Section number: 01.06 Subtopic: Density and Specific Gravity Topic: Study of Chemistry

38. If the density of blood is 1.060 g/mL, what is the mass of 6.56 pints of blood? [1 L = 2.113 pints]

- <u>A.</u> 3.29 kg
- B. 329 g
- C. 2.93 g
- D. 2930 g
- E. 2.93 kg

Accessibility: Keyboard Navigation Bloom's Level: 3. Apply Difficulty: Medium Gradable: automatic Section number: 01.06 Subtopic: Density and Specific Gravity Subtopic: Dimensional Analysis Topic: Study of Chemistry

39. What is the density of a solid object that has the following measurements?

mass = 189.6 g, length = 9.80 cm, width = 46.6 mm, height = 0.111 m.

- A. 0.267 g/mL
- <u>**B.</u>** 0.374 g/mL</u>
- C. 2.67 g/mL
- D. 3.74 g/mL
- E. 50.7 g/mL

Accessibility: Keyboard Navigation Bloom's Level: 3. Apply Difficulty: Medium Gradable: automatic Section number: 01.06 Subtopic: Density and Specific Gravity Subtopic: Measurements (Metric and SI Units) Topic: Study of Chemistry

40. Air has an average density of 0.001226 g/mL. What volume of air would have a mass of 1.0 lb? [454 g = 1 pound]

A. 37 mL B. 370 mL C. 557 mL D. 2.7 \times 10⁻⁶ mL E. 3.7 \times 10² L

> Accessibility: Keyboard Navigation Bloom's Level: 3. Apply Difficulty: Medium Gradable: automatic Section number: 01.06 Subtopic: Density and Specific Gravity Subtopic: Dimensional Analysis Topic: Study of Chemistry

41. Which branch of science primarily involves the study of matter and the changes it undergoes?

- A. biology
- B. technology
- C. physics
- D. chemistry
- E. All of the choices are correct.

Accessibility: Keyboard Navigation Bloom's Level: 1. Remember Difficulty: Easy Gradable: automatic Section number: 01.01 Subtopic: Classification and States of Matter Topic: Study of Chemistry

42. Which of the following terms is defined as anything that has mass and occupies space?

- A. chemistry
- B. element
- C. matter
- D. compound
- E. volume

Accessibility: Keyboard Navigation Bloom's Level: 1. Remember Difficulty: Easy Gradable: automatic Section number: 01.01 Subtopic: Classification and States of Matter Topic: Study of Chemistry

43. In which state does matter have an indefinite shape and definite volume?

- A. solid
- **B.** liquid
- C. gas
- D. All of the choices are correct.
- E. None of the choices are correct.

Accessibility: Keyboard Navigation Bloom's Level: 1. Remember Difficulty: Easy Gradable: automatic Section number: 01.02 Subtopic: Classification and States of Matter Topic: Study of Chemistry

44. In which state of matter are forces between particles least dominant?

- A. solid
- B. liquid
- <u>**C.**</u> gas
- D. All of the choices are correct.
- E. None of the choices are correct.

Accessibility: Keyboard Navigation Bloom's Level: 1. Remember Difficulty: Easy Gradable: automatic Section number: 01.02 Subtopic: Classification and States of Matter Topic: Study of Chemistry

45. Conversion of ice to liquid water or liquid water to steam is an example of what kind of change?

- A. physical
- B. chemical
- C. molecular
- D. analytical
- E. Both physical and chemical are correct.

Accessibility: Keyboard Navigation Bloom's Level: 2. Understand Difficulty: Easy Gradable: automatic Section number: 01.02 Subtopic: Changes in Matter Topic: Study of Chemistry 46. What type of change is represented by the decay of a fallen tree?

A. physical

- B. chemical
- C. molecular
- D. analytical
- E. All of the choices are correct.

Accessibility: Keyboard Navigation Bloom's Level: 2. Understand Difficulty: Easy Gradable: automatic Section number: 01.02 Subtopic: Changes in Matter Topic: Study of Chemistry

47. The green color of the Statue of Liberty is due to a(an) ______ change to the copper metal.

- A. elemental
- B. physical
- C. state
- D. chemical
- E. None of the choices are correct.

Accessibility: Keyboard Navigation Bloom's Level: 2. Understand Difficulty: Medium Gradable: automatic Section number: 01.02 Subtopic: Changes in Matter Topic: Study of Chemistry

48. What type of property of matter is independent of the quantity of the substance?

- A. chemical
- B. physical
- C. extensive
- D. intensive
- E. nuclear

Accessibility: Keyboard Navigation Bloom's Level: 1. Remember Difficulty: Easy Gradable: automatic Section number: 01.02 Subtopic: Properties of Matter Topic: Study of Chemistry

49. What are the two classes of pure substances?

- A. elements and atoms
- B. compounds and molecules
- **<u>C.</u>** elements and compounds
- D. chemical and physical
- E. homogeneous and heterogeneous

Accessibility: Keyboard Navigation Bloom's Level: 1. Remember Difficulty: Easy Gradable: automatic Section number: 01.02 Subtopic: Classification and States of Matter Topic: Study of Chemistry 50. What does the prefix "centi-" mean?

- A. 10⁻¹
- <u>**B.**</u> 10⁻²
- C. 10⁻³
- D. 10²
- E. 10³

Accessibility: Keyboard Navigation Bloom's Level: 1. Remember Difficulty: Easy Gradable: automatic Section number: 01.03 Subtopic: Measurements (Metric and SI Units) Topic: Study of Chemistry

51. How many centimeters correspond to 15.68 kilometers?

- <u>A.</u> 1.568×10^{6} cm
- B. 1.568×10^5 cm
- C. 1.568×10^{-4} cm
- D. 1568 cm
- E. 1.569 cm

Accessibility: Keyboard Navigation Bloom's Level: 3. Apply Difficulty: Medium Gradable: automatic Section number: 01.05 Subtopic: Dimensional Analysis Subtopic: Measurements (Metric and SI Units) Topic: Study of Chemistry

52. How many pounds are represented by 764.6 mg? [1 pound = 454 g]

- A. 347.1 lb
- B. 3.471 × 10⁸ lb
- <u>**C.</u>** 1.684 × 10⁻³ lb</u>
- D. 1.684 lb
- E. 0.7646 lb

Accessibility: Keyboard Navigation Bloom's Level: 3. Apply Difficulty: Medium Gradable: automatic Section number: 01.05 Subtopic: Dimensional Analysis Topic: Study of Chemistry

- 53. If a person smokes 10.0 packs of cigarettes a week and each cigarette contains 5.00 mg of tar, how many years will she have to smoke to inhale 0.250 pounds of tar? [20 cigarettes = 1 pack, 1 pound = 454 g and 1 year = 52 weeks]
- <u>A.</u> 2.18 y B. 2.18 × 10⁻² y C. 1.06 y D. 28.6 y
- E. 0.556 y

Accessibility: Keyboard Navigation Bloom's Level: 4. Analyze Difficulty: Hard Gradable: automatic Section number: 01.05 Subtopic: Dimensional Analysis Topic: Study of Chemistry

54. The cost of a drug is 125 francs per gram. What is the cost in dollars per ounce? [\$1 = 6.25 francs and 1 ounce = 28.4 g]

- A. \$0.70/oz
- <u>**B.</u> \$568/oz</u>**
- C. \$27.5/oz
- D. \$2.22 × 10⁴/oz
- E. \$4.65/oz

Accessibility: Keyboard Navigation Bloom's Level: 3. Apply Difficulty: Medium Gradable: automatic Section number: 01.05 Subtopic: Dimensional Analysis Topic: Study of Chemistry

55. How many significant figures does the number 5.06305×10^4 contain?

- A. 4
- B. 5
- <u>C.</u> 6
- D. 7 E. 9

Accessibility: Keyboard Navigation Bloom's Level: 2. Understand Difficulty: Easy Gradable: automatic Section number: 01.04 Subtopic: Scientific Notation and Significant Figures Topic: Study of Chemistry

56. Provide the answer to the following problem using scientific notation and the proper number of significant digits: $(6.00 \times 10^{-2})(3.00 \times 10^{-4}) = ?$

A.

 1.8×10^{-5}

<u>B.</u>

1.80 ×10⁻⁵

C. 1.80×10^{-4}

D.

18.00×10^{-4}

Ε.

2 × 10⁻⁵

Accessibility: Keyboard Navigation Bloom's Level: 3. Apply Difficulty: Medium Gradable: automatic Section number: 01.04 Subtopic: Scientific Notation and Significant Figures Topic: Study of Chemistry

- 57. A student measures the mass of three separate samples of a solid: 104.45 g, 0.838 g, and 46 g. If the student mixes all three samples together, how should the total mass be properly reported?
- A. 151.288

B. 151.28

- C. 151.29
- $\underline{D.}$ 151 E. 1.5 × 10²

Accessibility: Keyboard Navigation Bloom's Level: 3. Apply Difficulty: Medium Gradable: automatic Section number: 01.04 Subtopic: Scientific Notation and Significant Figures Topic: Study of Chemistry

58. Which measurement represents the largest volume?

<u>A.</u> 4.6 L B. 4.6×10^{-3} L C. 46 cL D. 460 mL

E. All represent the same volume.

Accessibility: Keyboard Navigation Bloom's Level: 4. Analyze Difficulty: Medium Gradable: automatic Section number: 01.03 Subtopic: Dimensional Analysis Subtopic: Measurements (Metric and SI Units) Topic: Study of Chemistry

59. What term is used to describe the summary of a large quantity of information?

- A. hypothesis
- B. theory
- <u>C.</u> law
- D. model
- E. result

Accessibility: Keyboard Navigation Bloom's Level: 1. Remember Difficulty: Easy Gradable: automatic Section number: 01.01 Subtopic: Scientific Method Topic: Study of Chemistry

60. Which state of matter has neither a definite shape nor a definite volume?

- A. liquid
- B. solid
- C. gas
- D. vapor
- E. Both gas and vapor are correct.

Accessibility: Keyboard Navigation Bloom's Level: 1. Remember Difficulty: Easy Gradable: automatic Section number: 01.02 Subtopic: Classification and States of Matter Topic: Study of Chemistry

61. Which of the following is NOT a physical property of matter?

- A. odor
- B. compressibility
- C. flash point
- D. melting point
- E. color

Accessibility: Keyboard Navigation Bloom's Level: 2. Understand Difficulty: Easy Gradable: automatic Section number: 01.02 Subtopic: Properties of Matter Topic: Study of Chemistry 62. The distance between two hydrogen atoms in a hydrogen molecule (H2) is 7.461 $\times 10^{-11}$. What is the equivalent distance expressed in inches? [2.54 cm = 1 in]

Α.

2 × 10⁻⁹ in

В.

1.895 × 10⁻¹² in

C.

294 × 10⁻¹¹ in

<u>D.</u>

2.937 × 10⁻⁹ in

Ε.

2.94 × 10⁻⁸ in

Accessibility: Keyboard Navigation Bloom's Level: 3. Apply Difficulty: Medium Gradable: automatic Section number: 01.05 Subtopic: Dimensional Analysis Topic: Study of Chemistry

63. What kind of change always results in the formation of new materials?

- A. molecular
- B. exothermic
- C. endothermic
- D. physical
- E. chemical

Accessibility: Keyboard Navigation Bloom's Level: 2. Understand Difficulty: Easy Gradable: automatic Section number: 01.02 Subtopic: Changes in Matter Topic: Study of Chemistry

64. Which of the following is a chemical property?

- A. flammability
- B. color
- C. hardness
- D. temperature E. melting point
- L. menning point

Accessibility: Keyboard Navigation Bloom's Level: 2. Understand Difficulty: Easy Gradable: automatic Section number: 01.02 Subtopic: Properties of Matter Topic: Study of Chemistry

65. Which one of the following is an example of an extensive property?

- A. density
- B. specific gravity
- <u>C.</u> mass
- D. hardness
- E. boiling temperature

Accessibility: Keyboard Navigation Bloom's Level: 2. Understand Difficulty: Easy Gradable: automatic Section number: 01.02 Subtopic: Properties of Matter Topic: Study of Chemistry 66. Which one of the following is an example of a pure substance?

- <u>A.</u> ethyl alcohol B. sugar water
- C. salt and pepper
- D. milk
- E. sand

Accessibility: Keyboard Navigation Bloom's Level: 2. Understand Difficulty: Easy Gradable: automatic Section number: 01.02 Subtopic: Classification and States of Matter Topic: Study of Chemistry

67. Air is a/an

- A. element.
- B. compound.
- <u>C.</u> mixture. D. molecule.
- E. pure substance.

Accessibility: Keyboard Navigation Bloom's Level: 2. Understand Difficulty: Easy Gradable: automatic Section number: 01.02 Subtopic: Classification and States of Matter Topic: Study of Chemistry

- 68. The speed of light is 186,000 miles per second. What is its speed in centimeters per second? [5280 feet = 1 mile; 12 inches = 1 foot; 2.54 cm = 1 inch]
- A. 3.01×10^{11} cm/s B. 3.15×10^{10} cm/s C. 6.06×10^{12} cm/s D. 3×10^{11} cm/s

- **E.** 2.99×10^{10} cm/s

Accessibility: Keyboard Navigation Bloom's Level: 3. Apply Difficulty: Medium Gradable: automatic Section number: 01.05 Subtopic: Dimensional Analysis Topic: Study of Chemistry 69. 1 centimeter equals how many millimeters?

- A. 10⁻⁶
- B. 10⁻³
- <u>C.</u> 10
- D. 10⁴
- E. 10⁶

Accessibility: Keyboard Navigation Bloom's Level: 3. Apply Difficulty: Medium Gradable: automatic Section number: 01.03 Subtopic: Dimensional Analysis Subtopic: Measurements (Metric and SI Units) Topic: Study of Chemistry

70. Round 0.052018 to three significant figures.

- A. 0.05
- B. 0.052
- <u>**C.</u>** 0.0520</u>
- D. 0.05201
- E. 0.05202

Accessibility: Keyboard Navigation Bloom's Level: 3. Apply Difficulty: Easy Gradable: automatic Section number: 01.04 Subtopic: Scientific Notation and Significant Figures Topic: Study of Chemistry

71. Select the answer that best expresses the result of the following calculation: 1.86 + 246.4 - 79.9208 = ?

- A. 168
- <u>**B.</u> 168.3</u></u>**
- C. 168.34
- D. 168.339
- E. 168.3392

Accessibility: Keyboard Navigation Bloom's Level: 3. Apply Difficulty: Medium Gradable: automatic Section number: 01.04 Subtopic: Scientific Notation and Significant Figures Topic: Study of Chemistry

72. What is the appropriate number of significant figures necessary to express the result of the calculation below? (51.6) × (3.1416)

- A. 1
- B. 2
- <u>C.</u> 3 D. 4
- D. 4 E. 5
- E. D

Accessibility: Keyboard Navigation Bloom's Level: 2. Understand Difficulty: Medium Gradable: automatic Section number: 01.04 Subtopic: Scientific Notation and Significant Figures Topic: Study of Chemistry A. _{-20°C}

<u>**B.**</u> _{-20.3°C}

C. _____

D. _{-10.9°C}

E. __{-68.4°C}

Accessibility: Keyboard Navigation Bloom's Level: 3. Apply Difficulty: Medium Gradable: automatic Section number: 01.06 Subtopic: Temperature Topic: Study of Chemistry

74. What Fahrenheit temperature corresponds to -40.0°C?

A. -8°F

- B. 16.8°F
- C. -36.9°F <u>D.</u> -40.0°F E. -1.94°F

Accessibility: Keyboard Navigation Bloom's Level: 3. Apply Difficulty: Medium Gradable: automatic Section number: 01.06 Subtopic: Temperature Topic: Study of Chemistry

75. What Kelvin temperature corresponds to 98.6°F?

- A. 310 K
- <u>**B.</u> 310.2 K</u>**
- C. 31.00 K
- D. 132.0 K
- E. 199 K

Accessibility: Keyboard Navigation Bloom's Level: 3. Apply Difficulty: Medium Gradable: automatic Section number: 01.06 Subtopic: Temperature Topic: Study of Chemistry 76. Which temperature scale does not use a degree sign?

- A. Celsius
- **B.** Kelvin
- C. Centigrade
- D. Fahrenheit
- E. Absolute zero

Accessibility: Keyboard Navigation Bloom's Level: 2. Understand Difficulty: Easy Gradable: automatic Section number: 01.06 Subtopic: Temperature Topic: Study of Chemistry

77. If the density of carbon tetrachloride is 1.59 g/mL, what is the volume in L, of 4.21 kg of carbon tetrachloride?

- A. 0.149 L
- B. 0.378 L
- <u>C.</u> 2.65 L
- D. 6.69 L
- E. 6690 L

Accessibility: Keyboard Navigation Bloom's Level: 3. Apply Difficulty: Hard Gradable: automatic Section number: 01.06 Subtopic: Density and Specific Gravity Subtopic: Dimensional Analysis Topic: Study of Chemistry

- 78. What is the specific gravity of an object that weighs 13.35 g and has a volume of 25.00 mL? The density of water under the same conditions is 0.980 g/mL.
- A. 1.335
- B. 0.545 g/mL
- C. 0.534 g/mL
- <u>D.</u> 0.545
- E. 0.980

Accessibility: Keyboard Navigation Bloom's Level: 3. Apply Difficulty: Medium Gradable: automatic Section number: 01.06 Subtopic: Density and Specific Gravity Topic: Study of Chemistry

79. Which of the following is FALSE concerning the gas state?

- A. Gases have no definite shape.
- B. Gases have no definite volume.
- C. Particles are far apart from each other.
- D. Particles are usually in a regular or organized pattern.
- E. When gas molecules collide, they do not lose energy.

Accessibility: Keyboard Navigation Bloom's Level: 1. Remember Difficulty: Easy Gradable: automatic Section number: 01.02 Subtopic: Classification and States of Matter Topic: Study of Chemistry

80. Which of the following is an example of physical change?

- A. boiling water
- B. burning paper
- C. a metal losing electrons to become a cation
- D. cooking eggs
- E. lighting a match

Accessibility: Keyboard Navigation Bloom's Level: 2. Understand Difficulty: Easy Gradable: automatic Section number: 01.02 Subtopic: Changes in Matter Topic: Study of Chemistry

81. Which statement is FALSE?

- A. Mass is an example of an extensive property.
- B. Volume is an example of an extensive property.
- C. Temperature is an example of an intensive property.
- D. An intensive property is one that does not depend upon the amount of the substance.
- E. An extensive property is synonymous with a physical property.

Accessibility: Keyboard Navigation Bloom's Level: 2. Understand Difficulty: Medium Gradable: automatic Section number: 01.02 Subtopic: Properties of Matter Topic: Study of Chemistry

82. NaCl is best classified as a/an

- A. pure substance.
- B. element.
- C. compound.
- D. homogeneous mixture.
- E. Both pure substance and compound are correct.

Accessibility: Keyboard Navigation Bloom's Level: 2. Understand Difficulty: Easy Gradable: automatic Section number: 01.02 Subtopic: Classification and States of Matter Topic: Study of Chemistry

83. Which of the following numbers has only one significant figure?

- A. 3.0×10^{1}
- <u>**B.</u> 0.003</u></u>**
- C. 3.00
- D. 30.0
- E. All of the choices are correct.

Accessibility: Keyboard Navigation Bloom's Level: 2. Understand Difficulty: Easy Gradable: automatic Section number: 01.04 Subtopic: Scientific Notation and Significant Figures Topic: Study of Chemistry 84. Give the answer to the following calculation to the correct number of significant figures. $(5.0 \times 10^{-4}) - (6 \times 10^{-5}) = ?$



Accessibility: Keyboard Navigation Bloom's Level: 3. Apply Difficulty: Medium Gradable: automatic Section number: 01.04 Subtopic: Scientific Notation and Significant Figures Topic: Study of Chemistry

85. The area of a rectangle is determined by the formula: area = length x width. If a rectangle has a length of 32.6 cm and a width of 72.6 cm, what is the area of the rectangle to the correct number of significant figures?

- A. 2,400 cm² **<u>B.</u>** 2,370 cm² C. 2,367 cm²
- D. 2,366.8 cm²
- E. 2,366.76 cm²

Accessibility: Keyboard Navigation Bloom's Level: 3. Apply Difficulty: Medium Gradable: automatic Section number: 01.04 Subtopic: Scientific Notation and Significant Figures Topic: Study of Chemistry

86. Consider the following set of numbers. If the true value is 12.6 cm², which of the following best describes the set of numbers? 12.6 cm², 12.5 cm², 12.6 cm²

A. accurate but not precise

- B. not accurate but precise
- C. accurate and precise
- D. neither accurate nor precise

E. More information is needed to determine if the measurements are accurate.

Accessibility: Keyboard Navigation Bloom's Level: 2. Understand Difficulty: Easy Gradable: automatic Section number: 01.04 Subtopic: Scientific Notation and Significant Figures Topic: Study of Chemistry

A. 3.5×10^{-1} cm B. 3.5×10^{-7} cm C. 3.5×10^{2} cm D. 3.5×10^{5} cm <u>E.</u> 3.5×10^{3} cm

> Accessibility: Keyboard Navigation Bloom's Level: 3. Apply Difficulty: Medium Gradable: automatic Section number: 01.05 Subtopic: Dimensional Analysis Subtopic: Measurements (Metric and SU Units) Topic: Study of Chemistry

88. Tire pressure in the U.S. is measured in lb/in^2 . Convert 25 lb/in^2 to g/cm^2 . 454 g = 1 lb, 2.54 cm = 1 in

A. 0.39 g/cm^2 **B.** $1.8 \times 10^3 \text{ g/cm}^2$ C. $4.7 \times 10^3 \text{ g/cm}^2$ D. $3.0 \times 10^4 \text{ g/cm}^2$ E. $2.4 \times 10^2 \text{ g/cm}^2$

> Accessibility: Keyboard Navigation Bloom's Level: 3. Apply Difficulty: Medium Gradable: automatic Section number: 01.05 Subtopic: Dimensional Analysis Topic: Study of Chemistry

89. What volume, in milliliters, will 2.00 g of air occupy if the density is 1.29 g/L?

- <u>A.</u> 2.72 × 10³ mL B. 2.20 mL
- C. 1.43 mL
- D. 1.55×10^3 mL
- E. $4.59 \times 10^{2} \text{ mL}$

Accessibility: Keyboard Navigation Bloom's Level: 3. Apply Difficulty: Medium Gradable: automatic Section number: 01.06 Subtopic: Density and Specific Gravity Topic: Study of Chemistry

90. Concentration is a measure of the number or mass of particles of a substance that are contained in a specified volume.

<u>TRUE</u>

Accessibility: Keyboard Navigation Bloom's Level: 1. Remember Difficulty: Easy Gradable: automatic Section number: 01.06 Subtopic: Measurements (Metric and SI Units) Topic: Study of Chemistry

91. Hypotheses are not acceptable in the scientific method.

FALSE

Accessibility: Keyboard Navigation Bloom's Level: 2. Understand Difficulty: Easy Gradable: automatic Section number: 01.01 Subtopic: Scientific Method Topic: Study of Chemistry 92. In the scientific method, a law carries more weight than a hypothesis.

TRUE

Accessibility: Keyboard Navigation Bloom's Level: 2. Understand Difficulty: Easy Gradable: automatic Section number: 01.01 Subtopic: Scientific Method Topic: Study of Chemistry

93. Each piece of data is the individual result of a single measurement.

TRUE

Accessibility: Keyboard Navigation Bloom's Level: 2. Understand Difficulty: Easy Gradable: automatic Section number: 01.01 Subtopic: Scientific Method Topic: Study of Chemistry

Accessibility: Keyboard Navigation

Accessibility: Keyboard Navigation Bloom's Level: 2. Understand

Difficulty: Easy Gradable: automatic Section number: 01.04

Topic: Study of Chemistry

Topic: Study of Chemistry

94. The presence of some error is a natural consequence of any measurement.

<u>TRUE</u>

Bloom's Level: 2. Understand Difficulty: Easy Gradable: automatic Section number: 01.04 Subtopic: Scientific Notation and Significant Figures Topic: Study of Chemistry

Subtopic: Scientific Notation and Significant Figures

95. The number 0.0680 has 3 significant figures.

TRUE

96. The terms mass and weight are identical.

FALSE

97. Mass is the force resulting from the pull of gravity upon an object.

FALSE

Accessibility: Keyboard Navigation Bloom's Level: 2. Understand Difficulty: Easy Gradable: automatic Section number: 01.03 Subtopic: Measurements (Metric and S1 Units)

Accessibility: Keyboard Navigation Bloom's Level: 1. Remember Difficulty: Easy Gradable: automatic Section number: 01.03 Subtopic: Measurements (Metric and SI Units) Topic: Study of Chemistry

98. Equal masses of glass and steel at the same temperature will have different heat energies.

TRUE

Accessibility: Keyboard Navigation Bloom's Level: 2. Understand Difficulty: Easy Gradable: automatic Section number: 01.06 Subtopic: Temperature Topic: Study of Chemistry 99. Energy may be defined as the heat content of an object.

FALSE

Accessibility: Keyboard Navigation Bloom's Level: 1. Remember Difficulty: Easy Gradable: automatic Section number: 01.06 Subtopic: Temperature Topic: Study of Chemistry

100. One calorie is the amount of energy needed to raise the temperature of one gram of water one degree Celsius.

TRUE

Accessibility: Keyboard Navigation Bloom's Level: 1. Remember Difficulty: Easy Gradable: automatic Section number: 01.06 Subtopic: Temperature Topic: Study of Chemistry

101. Density and specific gravity can be expressed in the same units.

FALSE

Accessibility: Keyboard Navigation Bloom's Level: 2. Understand Difficulty: Easy Gradable: automatic Section number: 01.06 Subtopic: Density and Specific Gravity Topic: Study of Chemistry

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