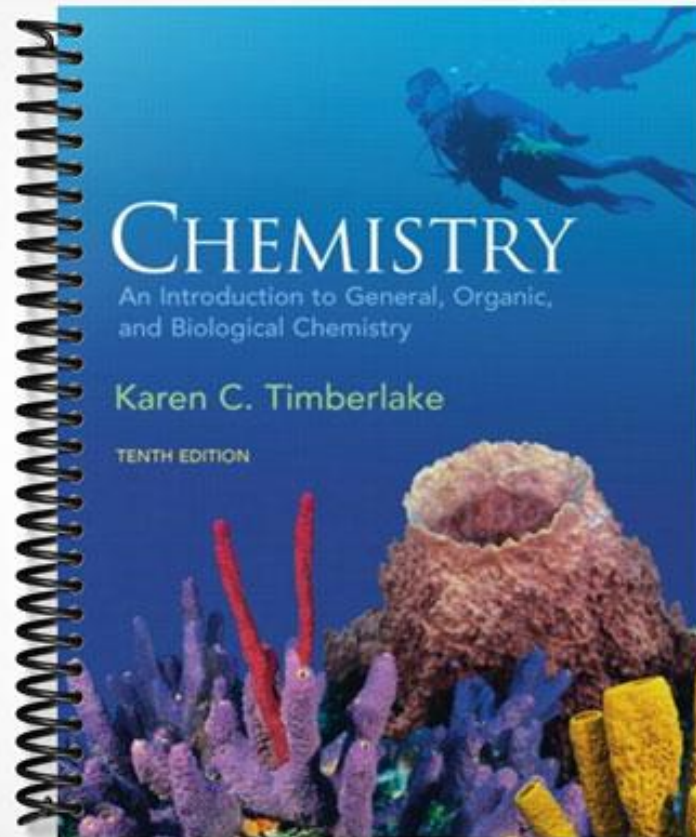


**TEST BANK**



### 1.1 Multiple-Choice Questions

1) 5.21 cm is the same distance as

- A) 0.0521 m.
- B) 52.1 dm.
- C) 5.21 mm.
- D) 0.00521 km.
- E) 5210 m.

Answer: A

2) How many centimeters are there in 57.0 in.?

- A) 22 cm
- B) 0.0445 cm
- C) 145 cm
- D) 22.4 cm
- E) 140 cm

Answer: C

3) The amount of space occupied by a substance is its

- A) mass.
- B) density.
- C) weight.
- D) length.
- E) volume.

Answer: E

An Intro to General, Organic, and Biological Chemistry, 10e  
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4) Which of the following is the basic unit of volume in the metric system?

- A) liter
- B) kilogram
- C) meter
- D) centimeter
- E) gram

Answer: A

5) Which of the following is a measurement of mass in the metric system?

- A) milliliter
- B) centimeter
- C) kilogram
- D) Celsius
- E) meter

Answer: C

6) A value of 25 °C is a measurement of

- A) distance.
- B) volume.
- C) temperature.
- D) mass.
- E) density.

Answer: C

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7) A value of 36 mL is a measure of

- A) density
- B) mass
- C) temperature
- D) volume
- E) distance

Answer: D

8) A value of 345 mm is a measure of

- A) density
- B) mass
- C) temperature
- D) volume
- E) distance

Answer: E

9) The measurement 0.000 004 3 m, expressed correctly using scientific notation, is

- A)  $4.3 \times 10^{-7}$  m .
- B)  $4.3 \times 10^{-6}$  m .
- C)  $4.3 \times 10^6$  m
- D)  $0.43 \times 10^{-5}$  m
- E) 4.3 m.

Answer: B

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10) Which of the following conversion factors is a measured number?

- A) 10 cm/dm
- B) 12 in/ft
- C) 16 oz/lb
- D) 25 miles/gallon
- E) 12 eggs/dozen

Answer: D

11) The measurement of the gravitational pull on an object is its

- A) volume.
- B) weight.
- C) mass.
- D) length.
- E) size.

Answer: B

12) Which of the following measurements has three significant figures?

- A) 0.005 m
- B) 510 m
- C) 0.510 m
- D) 0.051 m
- E) 5100 m

Answer: C

An Intro to General, Organic, and Biological Chemistry, 10e  
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13) 1.00 pint of milk has a volume of how many milliliters? (2 pints = 1 quart)

- A) 472 mL
- B) 530. mL
- C) 1000 mL
- D) 1890 mL
- E) 106 mL

Answer: A

14) Which of the following numbers contains the designated CORRECT number of significant figures?

- A) 0.04300     5 significant figures
- B) 0.00302     2 significant figures
- C) 156 000     3 significant figures
- D) 1.04         2 significant figures
- E) 3.0650       4 significant figures

Answer: C

15) The number of significant figures in the measurement of 45.030 mm is

- A) none.
- B) three.
- C) four.
- D) five.
- E) six.

Answer: D

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16) How many significant figures are in the number 0.00208?

- A) six
- B) two
- C) three
- D) four
- E) five

Answer: C

17) Which of the following examples illustrates a number that is correctly rounded to three significant figures?

- A) 4.05438 grams to 4.054 grams
- B) 0.03954 grams to 0.040 grams
- C) 103.692 grams to 103.7 grams
- D) 109 526 grams to 109 500 grams
- E) 20.0332 grams to 20.0 grams

Answer: E

18) A calculator answer of 423.6059 must be rounded off to three significant figures. What answer is reported?

- A) 423
- B) 424
- C) 420
- D) 423.6
- E) 423.7

Answer: B

An Intro to General, Organic, and Biological Chemistry, 10e  
Chapter 01: Measurements

19) Which of the answers for the following conversions contains the correct number of significant figures?

A)  $2.543 \text{ m} \times \frac{39.4 \text{ in}}{1 \text{ m}} = 100.1942 \text{ in}$

B)  $2 \text{ L} \times \frac{1.06 \text{ qt}}{1 \text{ L}} = 2.12 \text{ qt}$

C)  $24.95 \text{ min} \times \frac{1 \text{ hr}}{60 \text{ min}} = 0.4158 \text{ hr}$

D)  $12.0 \text{ ft} \times \frac{12 \text{ in}}{1 \text{ ft}} \times \frac{2.54 \text{ cm}}{1 \text{ in}} = 370 \text{ cm}$

E)  $24.0 \text{ kg} \times \frac{1 \text{ lb}}{2.20 \text{ kg}} = 11 \text{ lb}$

Answer: C

20) What is the correct answer for the calculation of a volume (in mL) with measured numbers  $\frac{28.58}{16 \times 8.02}$ ?

A) 0.22 mL

B) 0.223 mL

C) 57 mL

D) 14 mL

E) 14.3 mL

Answer: A

21) When  $2610 + 11.7 + 0.22$  are added, the answer to the correct number of decimal places is

A) 2621.92

B) 2621.9

C) 2621

D) 2620

E) 2600

Answer: D



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22) What is the answer, with the correct number of decimal places, for this problem?

$$4.392 \text{ g} + 102.40 \text{ g} + 2.51 \text{ g} =$$

- A) 109.302 g
- B) 109 g
- C) 109.3 g
- D) 109.30 g
- E) 110 g

Answer: D

23) The correct answer for the addition of  $7.5 \text{ g} + 2.26 \text{ g} + 1.311 \text{ g} + 2 \text{ g}$  is

- A) 13.071 g.
- B) 13 g.
- C) 13.0 g.
- D) 10 g.
- E) 13.1 g.

Answer: B

24) Which of the following measurements are NOT equivalent?

- A)  $25 \text{ mg} = 0.025 \text{ g}$
- B)  $183 \text{ L} = 0.183 \text{ kL}$
- C)  $150 \text{ msec} = 0.150 \text{ sec}$
- D)  $84 \text{ cm} = 8.4 \text{ mm}$
- E)  $24 \text{ dL} = 2.4 \text{ L}$

Answer: D

An Intro to General, Organic, and Biological Chemistry, 10e  
Chapter 01: Measurements

25) In which of the following is the metric unit paired with its correct abbreviation?

- A) microgram / mg
- B) milliliter / mL
- C) centimeter / km
- D) kilogram / cg
- E) gram / gm

Answer: B

26) Which of the following is the largest unit?

- A) millimeter
- B) micrometer
- C) meter
- D) decimeter
- E) kilometer

Answer: E

27) What is the metric relationship between grams and micrograms?

- A)  $1 \text{ g} = 100 \mu\text{g}$
- B)  $1 \text{ g} = 1\,000\,000 \mu\text{g}$
- C)  $1 \text{ g} = 0.000\,001 \mu\text{g}$
- D)  $1 \text{ g} = 1000 \mu\text{g}$
- E)  $1 \text{ g} = 0.001 \mu\text{g}$

Answer: B

An Intro to General, Organic, and Biological Chemistry, 10e  
Chapter 01: Measurements

28) What is the conversion factor for the relationship between millimeters and centimeters?

- A) 1 mm/1 cm
- B) 10 mm/1 cm
- C) 1 cm/1 mm
- D) 100 mm/1 cm
- E) 10 cm/1 mm

Answer: B

29) Which of the following is the smallest unit?

- A) gram
- B) milligram
- C) kilogram
- D) decigram
- E) microgram

Answer: E

30) The cubic centimeter ( $\text{cm}^3$  or cc) has the same volume as a

- A) cubic inch.
- B) cubic liter.
- C) milliliter.
- D) centimeter.
- E) cubic decimeter.

Answer: C

An Intro to General, Organic, and Biological Chemistry, 10e  
Chapter 01: Measurements

31) 9.31 g is the same mass as

- A) 931  $\mu\text{g}$ .
- B) 931 kg.
- C) 93.1 cg.
- D) 9310 mg.
- E) 0.0931 dg.

Answer: D

32) According to the United States Food and Drug Administration, the recommended daily requirement of protein is 44 g. This is \_\_\_\_\_ of protein.

- A) 1248.5 oz
- B) 320 000 oz
- C) 1.6 oz
- D) 0.0605 oz
- E) 150 000 oz

Answer: C

33) Which of the following setups would convert centimeters to feet?

- A)  $\text{cm} \times \frac{2.54 \text{ in.}}{1 \text{ cm}} \times \frac{1 \text{ ft}}{12 \text{ in.}}$
- B)  $\text{cm} \times \frac{2.54 \text{ cm}}{1 \text{ in.}} \times \frac{12 \text{ in.}}{1 \text{ ft}}$
- C)  $\text{cm} \times \frac{1 \text{ in.}}{2.54 \text{ cm}} \times \frac{1 \text{ ft}}{12 \text{ in.}}$
- D)  $\text{cm} \times \frac{1 \text{ in.}}{2.54 \text{ cm}} \times \frac{12 \text{ in.}}{1 \text{ ft}}$
- E)  $\text{cm} \times \frac{2.54 \text{ cm}}{1 \text{ in.}} \times \frac{1 \text{ ft}}{12 \text{ in.}}$

Answer: C

An Intro to General, Organic, and Biological Chemistry, 10e  
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34) A conversion factor set up correctly to convert 15 inches to centimeters is

- A) 100 cm/1 m.
- B) 1 inch/2.54 cm.
- C) 1 cm/10 mm.
- D) 2.54 cm/1 inch.
- E) 10 cm/1 inch.

Answer: D

35) How many pounds are in 3.5 kg?

- A) 7.7 lb
- B) 1.59 lb
- C) 0.629 lb
- D) 1.6 lb
- E) 7.70 lb

Answer: A

36) How many liters of soft drink are there in 5.25 qt?

- A) 4950 L
- B) 55.7 L
- C) 4.95 L
- D) 5.57 L
- E) 5.0 L

Answer: C

37) What is 6.5 m converted to inches?

- A) 1700 in
- B) 1651 in
- C) 39 in
- D) 260 in
- E) 255.9 in

Answer: D

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38) How many kilograms are in 30.4 lb?

- A) 13.8 kg
- B) 14 kg
- C) 67 kg
- D) 66.88 kg
- E) 66.9 kg

Answer: A

39) A nugget of gold with a mass of 521 g is added to 50.0 mL of water. The water level rises to a volume of 77.0 mL. What is the density of the gold?

- A) 10.4 g/mL
- B) 6.77 g/mL
- C) 1.00 g/mL
- D) 0.0518 g/mL
- E) 19.3 g/mL

Answer: E

40) A dose of aspirin of 5.0 mg per kilogram of body weight has been prescribed to reduce the fever of an infant weighing 8.5 pounds. The number of milligrams of aspirin that should be administered is

- A) 19 mg.
- B) 53 mg.
- C) 1.6 mg.
- D) 5.0 mg.
- E) 0.59 mg.

Answer: A

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41) A doctor's order is 0.125 g of ampicillin. The liquid suspension on hand contains 250 mg/5.0 mL. How many milliliters of the suspension are required?

- A) 0.0025 mL
- B) 3.0 mL
- C) 2.5 mL
- D) 6.3 mL
- E) 0.0063 mL

Answer: C

42) Which one of the following substances will float in gasoline, which has a density of 0.66 g/mL?

- A) table salt (d = 2.16 g/mL)
- B) balsa wood (d = 0.16 g/mL)
- C) sugar (d = 1.59 g/mL)
- D) aluminum (d = 2.70 g/mL)
- E) mercury (d = 13.6 g/mL)

Answer: B

43) What is the mass of 2.00 L of an intravenous glucose solution with a density of 1.15 g/mL?

- A) 0.023 kg
- B) 2.30 kg
- C) 1.15 kg
- D) 0.015 kg
- E) 0.58 kg

Answer: B

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44) Mercury has a specific gravity of 13.6. How many milliliters of mercury have a mass of 0.35 kg?

- A) 0.0257 mL
- B) 0.026 mL
- C) 25.7 mL
- D) 26 mL
- E) 4760 mL

Answer: D

45) What is the density of a substance with a mass of 45.00 g and a volume of 26.4 mL?

- A) 1.70 g/mL
- B) 1.7 g/mL
- C) 0.59 g/mL
- D) 0.587 g/mL
- E) 45.0 g/mL

Answer: A

46) What is the mass of 53 mL of ethyl alcohol, which has a density of 0.79 g/mL?

- A) 67.1 g
- B) 41.9 g
- C) 42 g
- D) 67 g
- E) 53 g

Answer: C



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47) A liquid has a volume of 34.6 mL and a mass of 46.0 g. What is the density of the liquid?

- A) 1.00 g/mL
- B) 1.33 g/mL
- C) 0.752 g/mL
- D) 1330 g/mL
- E) 0.663 g/mL

Answer: B

48) The density of a solution is 1.18 g/mL. Its specific gravity is

- A) 11.8.
- B) 0.118.
- C) 0.847.
- D) 1.18.
- E) 1.2.

Answer: D

49) Diamond has a density of 3.52 g/mL. What is the volume in cubic centimeters of a diamond with a mass of 15.1 g?

- A) 4.3 cm<sup>3</sup>
- B) 4.29 cm<sup>3</sup>
- C) 0.233 cm<sup>3</sup>
- D) 53 cm<sup>3</sup>
- E) 53.2 cm<sup>3</sup>

Answer: B

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50) The ratio of the mass of a substance to its volume is its

- A) specific gravity.
- B) density.
- C) buoyancy.
- D) weight.
- E) conversion factor.

Answer: B

51) The EPA limit for lead in the soil of play areas is 400 ppm. This is the same as

- A) 400 mg lead in each gram of soil.
- B) 400 g lead in each kilogram of soil.
- C) 400 mg lead in each kilogram of soil.
- D) 400  $\mu\text{g}$  lead in each kilogram of soil.
- E) 400  $\mu\text{g}$  lead in each milligram of soil.

Answer: C

52) Which of the following is often used to determine an individual's percentage of body fat?

- A) temperature
- B) height
- C) weight loss
- D) weight gain
- E) density

Answer: E

53) A 50.0 mL urine sample has a mass of 50.7 g. The specific gravity of the urine is

- A) 1.014 g/mL.
- B) 0.986 g/L.
- C) 1.01.
- D) 0.986.
- E) 50.7.

Answer: C

### 1.2 Short Answer Questions

*Round off each of the following to three significant figures.*

1) 504.85

Answer: 505

2) 8.3158

Answer: 8.32

3) 25 225

Answer: 25 200

4)  $6.3477 \times 10^4$

Answer:  $6.35 \times 10^4$

5) 399870

Answer:  $4.00 \times 10^5$

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6) 58.5422

Answer: 58.5

7) 0.003 4088

Answer: 0.00341

*Express each of the following numbers using scientific notation.*

8) 351 000 000 000

Answer:  $3.51 \times 10^{11}$

9) 0.000 860

Answer:  $8.60 \times 10^{-4}$

10) 5 207 000

Answer:  $5.207 \times 10^6$

11) 0.000 000 050

Answer:  $5.0 \times 10^{-8}$

*State the number of significant figures in each of the following measurements.*

12) 0.705 m

Answer: 3

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13) 680 000 km

Answer: 2

14) 0.008090 cm

Answer: 4

15) 28.050 km

Answer: 5

16) 0.0005 L

Answer: 1

17) 75.00 m

Answer: 4

18)  $2.043 \times 10^4$  mm

Answer: 4

19)  $6.1 \times 10^{-5}$  mL

Answer: 2

20)  $9.00 \times 10^6$  g

Answer: 3

### 1.3 Matching Questions

*Are the numbers in each of the following statements measured or exact?*

1) In the U.S. system there are 12 inches in one foot.	A) exact
2) The patient's blood sugar level is 350 mg/dL.	B) measured
3) There are 452 pages in a book.	
4) The rabbit weighs 2.5 pounds.	
5) 1 liter is equal to 1.06 quarts.	
6) There are 100 capsules in the bottle.	
7) The patient's temperature is 100.1 °F.	
8) I lost 14 pounds on my diet last month.	

Answer:

- 1) A
- 2) B
- 3) A
- 4) B
- 5) B
- 6) A
- 7) B
- 8) B

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*Match the type of measurement to the unit given below.*

9) milliliter	A) temperature
10) mm	B) density
11) gram	C) mass
12) 125 K	D) volume
13) kilometer	E) distance
14) milligram	

Answer:

- 9) D
- 10) E
- 11) C
- 12) A
- 13) E
- 14) C

*Select the correct prefix to complete the equality.*

15) 1 mL = _____ L	A) 100
16) 1 m = _____ mm	B) 10
17) 1 cm = _____ mm	C) 1
18) 1 dL = _____ mL	D) 0.001
19) 1 mL = _____ cc	E) 1000
20) 1 kg = _____ g	

Answer:

- 15) D
- 16) E
- 17) B
- 18) A
- 19) C
- 20) E