

# **Test Bank for General Organic and Biological Chemistry Structures of Life 6th Timberlake**

Name \_\_\_\_\_

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

- 1) The SI base unit for length is the \_\_\_\_\_  
A) foot.  
B) millimeter.  
C) meter.  
D) kilometer.  
E) inch.
- 2) The metric unit for volume is the \_\_\_\_\_  
A) liter.  
B) quart.  
C) meter.  
D) centimeter.  
E) pint.
- 3) Which of the following is the basic unit of mass in the SI? \_\_\_\_\_  
A) pound  
B) milligram  
C) gram  
D) microgram  
E) kilogram
- 4) Which of the following is a measurement of mass in the metric system? \_\_\_\_\_  
A) kilogram      B) centimeter      C) milliliter      D) meter      E) Celsius
- 5) Which of the following is a measurement of temperature in the metric system? \_\_\_\_\_  
A) meter  
B) degree Celsius  
C) lb  
D) kilogram  
E) degree Fahrenheit
- 6) A value of 25 °C is a measurement of \_\_\_\_\_  
A) distance.  
B) density.  
C) mass.  
D) temperature.  
E) volume.
- 7) A value of 36 mL is a measure of \_\_\_\_\_  
A) density.  
B) volume.  
C) temperature.  
D) mass.  
E) distance.

- 8) A value of 345 cm is a measure of \_\_\_\_\_  
 A) volume.  
 B) mass.  
 C) density.  
 D) distance.  
 E) temperature.
- 9) The amount of space occupied by a substance is its \_\_\_\_\_  
 A) mass.                      B) density.                      C) volume.                      D) length.                      E) weight.
- 10) The measurement of the gravitational pull on an object is its \_\_\_\_\_  
 A) volume.                      B) size.                      C) length.                      D) mass.                      E) weight.
- 11) Significant figures are important because they indicate \_\_\_\_\_  
 A) the exact numbers in a measurement.  
 B) the number of digits on a calculator.  
 C) the certain and estimated digits in a measurement.  
 D) the accuracy of the conversion factor.  
 E) the number of measurements.
- 12) Which of the following measurements has three significant figures? \_\_\_\_\_  
 A) 5100 m                      B) 510 m                      C) 0.005 m                      D) 0.510 m                      E) 0.051 m
- 13) Which of the following measured 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) 3.0650                      4 significant figures  
 E) 1.04                      2 significant figures
- 14) The number of significant figures in the measurement of 45.030 mm is \_\_\_\_\_  
 A) none.                      B) three.                      C) four.                      D) five.                      E) six.
- 15) How many significant figures are in the measured number 0.00208 m? \_\_\_\_\_  
 A) four                      B) six                      C) three                      D) two                      E) five
- 16) Which of the following measurements has the same number of significant figures as the measured number 0.02030? \_\_\_\_\_  
 A) 0.0067                      B) 4600                      C) 4.006                      D)  $2.03 \times 10^3$                       E) 510
- 17) Which of the following examples illustrates a number that is correctly rounded to three significant figures? \_\_\_\_\_  
 A) 20.0332 grams to 20.0 grams  
 B) 0.03954 grams to 0.040 grams  
 C) 109,526 grams to 109 500 grams  
 D) 103.692 grams to 103.7 grams  
 E) 4.05438 grams to 4.054 grams

- 18) A calculator answer of 423.6059 must be rounded off to three significant figures. What answer is reported? 18) \_\_\_\_\_  
 A) 423.7                      B) 423.6                      C) 423                      D) 424                      E) 420
- 19) Which of the answers for the following calculations contains the correct number of significant figures? 19) \_\_\_\_\_  
 A)  $12.0 \text{ ft} \times \frac{12 \text{ in.}}{1 \text{ ft}} \times \frac{2.54 \text{ cm}}{1 \text{ in}} = 370 \text{ cm}$   
 B)  $24.95 \text{ min} \times \frac{1 \text{ h}}{60 \text{ min}} = 0.4158 \text{ h}$   
 C)  $2.543 \text{ m} \times \frac{39.4 \text{ in}}{1 \text{ m}} = 100.1942 \text{ in}$   
 D)  $2 \text{ L} \times \frac{1.06 \text{ qt}}{1 \text{ L}} = 2.12 \text{ qt}$   
 E)  $24.0 \text{ kg} \times \frac{1 \text{ lb}}{2.20 \text{ kg}} = 11 \text{ lb}$
- 20) What is the correct answer for the calculation of a volume (in mL) with measured numbers 20) \_\_\_\_\_  
 $\frac{28.58}{16 \times 8.02}$ ?  
 A) 0.22 mL                      B) 14.3 mL                      C) 57 mL                      D) 14 mL                      E) 0.223 mL
- 21) A researcher added three samples of sodium chloride solution; the volumes were: 0.351 mL, 0.350 mL and 0.349 mL. The total volume should be reported as 21) \_\_\_\_\_  
 A) 1.0 mL.  
 B) 1.050 mL.  
 C) 1.05 mL.  
 D) 1.0500 mL.  
 E) 1.1 mL.
- 22) When  $2610 + 11.7 + 0.22$  are added, which of the following expresses the answer to the correct number of decimal places? 22) \_\_\_\_\_  
 A) 2621.9                      B) 2621                      C) 2621.92                      D) 2600                      E) 2620
- 23) What is the answer, with the correct number of decimal places, for this problem? 23) \_\_\_\_\_  
 $4.392 \text{ g} + 102.40 \text{ g} + 2.51 \text{ g} =$   
 A) 109.302 g                      B) 109.3 g                      C) 109.30 g                      D) 110 g                      E) 109 g
- 24) The correct answer for the addition of  $7.5 \text{ g} + 2.26 \text{ g} + 1.311 \text{ g} + 2 \text{ g}$  is 24) \_\_\_\_\_  
 A) 13.0 g.                      B) 10 g.                      C) 13.1 g.                      D) 13 g.                      E) 13.071 g.
- 25) What is the correct answer for the calculation  $\frac{36 \times 0.12345}{6.77}$ ? 25) \_\_\_\_\_  
 A) 0.65645                      B) 1.52                      C) 1.5                      D) 0.66                      E) 0.656

- 26) 5.21 cm is the same distance as 26) \_\_\_\_\_  
A) 0.0521 m.  
B) 52.1 dm.  
C) 5210 m.  
D) 0.00521 km.  
E) 5.21 mm.
- 27) Which of the following measurements are NOT equivalent? 27) \_\_\_\_\_  
A) 183 L = 0.183 kL  
B) 84 cm = 8.4 mm  
C) 150. ms = 0.150 s  
D) 24 dL = 2.4 L  
E) 25 mg = 0.025 g
- 28) In which of the following is the metric unit paired with its correct abbreviation? 28) \_\_\_\_\_  
A) milliliter / mL  
B) centimeter / km  
C) kilogram / cg  
D) gram / gm  
E) microgram / mg
- 29) Which of the following is the largest unit? 29) \_\_\_\_\_  
A) kilometer  
B) millimeter  
C) meter  
D) micrometer  
E) decimeter
- 30) What is the relationship between grams and micrograms? 30) \_\_\_\_\_  
A) 1 g = 100  $\mu$ g  
B) 1 g = 0.001  $\mu$ g  
C) 1 g = 1 000 000  $\mu$ g  
D) 1 g = 1000  $\mu$ g  
E) 1 g = 0.000 001  $\mu$ g
- 31) Which of the following is the smallest unit? 31) \_\_\_\_\_  
A) milligram  
B) microgram  
C) decigram  
D) kilogram  
E) gram
- 32) The cubic centimeter ( $\text{cm}^3$  or cc) has the same volume as a 32) \_\_\_\_\_  
A) milliliter.  
B) centimeter.  
C) cubic inch.  
D) cubic liter.  
E) cubic decimeter.

- 33) 9.31 g is the same mass as \_\_\_\_\_  
A) 931  $\mu\text{g}$ .      B) 0.0931 dg.      C) 93.1 cg.      D) 9310 mg.      E) 931 kg.
- 34) In which of the following is the metric unit paired with its correct abbreviation? \_\_\_\_\_  
A) centimeter / cmm  
B) kilogram / Kg  
C) microgram / Mg  
D) milliliter / mL  
E) microgram / mcg
- 35) What is the conversion factor for the relationship between millimeters and centimeters? \_\_\_\_\_  
A) 100 mm/1 cm  
B) 10 mm/1 cm  
C) 1 cm/1 mm  
D) 10 cm/1 mm  
E) 1 mm/1 cm
- 36) A conversion factor set up correctly to convert 15 inches to centimeters is \_\_\_\_\_  
A) 1 cm/10 mm.  
B) 1 inch/2.54 cm.  
C) 100 cm/1 m.  
D) 10 cm/1 inch.  
E) 2.54 cm/1 inch.
- 37) Which of the following conversion factors is a measured number? \_\_\_\_\_  
A) 10 cm/dm  
B) 12 eggs/dozen  
C) 25 miles/gallon  
D) 12 in/ft  
E) 16 oz/lb
- 38) Parts per million (ppm) is the same as: \_\_\_\_\_  
A) parts per hundred  
B) micrograms per kilogram  
C) milligrams per kilogram  
D) grams per kilogram  
E) kilograms per milligram
- 39) According to the United States Food and Drug Administration, the recommended daily requirement of protein is 44 g. This is \_\_\_\_\_ oz of protein. \_\_\_\_\_  
A) 1248.5      B) 0.0605      C) 320 000      D) 1.6      E) 150 000

- 40) Which of the following setups would convert centimeters to feet? 40) \_\_\_\_\_
- A)  $\text{cm} \times \frac{2.54 \text{ in.}}{1 \text{ cm}} \times \frac{1 \text{ ft}}{12 \text{ in.}}$
- B)  $\text{cm} \times \frac{2.54 \text{ cm}}{1 \text{ in.}} \times \frac{1 \text{ ft}}{12 \text{ in.}}$
- C)  $\text{cm} \times \frac{1 \text{ in.}}{2.54 \text{ cm}} \times \frac{12 \text{ in.}}{1 \text{ ft}}$
- D)  $\text{cm} \times \frac{1 \text{ in.}}{2.54 \text{ cm}} \times \frac{1 \text{ ft}}{12 \text{ in.}}$
- E)  $\text{cm} \times \frac{2.54 \text{ cm}}{1 \text{ in.}} \times \frac{12 \text{ in.}}{1 \text{ ft}}$
- 41) The EPA limit for lead in the soil of play areas is 400 ppm. This is the same as 41) \_\_\_\_\_
- A) 400  $\mu\text{g}$  lead in each kilogram of soil.
- B) 400 mg lead in each gram of soil.
- C) 400  $\mu\text{g}$  lead in each milligram of soil.
- D) 400 mg lead in each kilogram of soil.
- E) 400 g lead in each kilogram of soil.
- 42) How many pounds are in 3.5 kg? 42) \_\_\_\_\_
- A) 1.59 lb      B) 1.6 lb      C) 0.629 lb      D) 7.70 lb      E) 7.7 lb
- 43) How many centimeters are there in 57.0 in.? 43) \_\_\_\_\_
- A) 22.4 cm      B) 140 cm      C) 145 cm      D) 0.0445 cm      E) 22 cm
- 44) How many kilograms are in 30.4 lb? 44) \_\_\_\_\_
- A) 14 kg      B) 66.88 kg      C) 13.8 kg      D) 66.9 kg      E) 67 kg
- 45) How many liters of soft drink are there in 5.25 qt? 45) \_\_\_\_\_
- A) 4.95 L      B) 5.57 L      C) 55.7 L      D) 5.0 L      E) 4950 L
- 46) What is 6.5 m converted to inches? 46) \_\_\_\_\_
- A) 39 in      B) 1700 in      C) 1651 in      D) 260 in      E) 255.9 in
- 47) 1.00 pint of milk has a volume of how many milliliters? (2 pints = 1 quart) 47) \_\_\_\_\_
- A) 1890 mL      B) 472 mL      C) 530. mL      D) 1000 mL      E) 106 mL
- 48) What is the volume of a cube that measures 4.00 cm on each side? 48) \_\_\_\_\_
- A) 16.0 mL      B) 64.0 mL      C) 0.640 L      D) 64.00 mL      E) 64.0 L
- 49) Grapes are \$1.49 per pound. What is the cost of 1.20 kg of grapes? 49) \_\_\_\_\_
- A) \$0.81      B) \$0.56      C) \$2.73      D) \$3.94      E) \$1.79
- 50) A driver is traveling at 60 km/h. Is the driver speeding if the speed limit is 45 mph? 50) \_\_\_\_\_
- A) Yes      B) No
- 51) How many kilograms are in 30.4 lb? 51) \_\_\_\_\_
- A) 66.9 kg      B) 67 kg      C) 14 kg      D) 13.8 kg      E) 66.88 kg

- 52) 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) 0.59 mg.      B) 5.0 mg.      C) 53 mg.      D) 19 mg.      E) 1.6 mg.
- 53) 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) 6.3 mL      B) 0.0025 mL      C) 2.5 mL      D) 0.0063 mL      E) 3.0 mL
- 54) 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) 6.77 g/mL  
B) 10.4 g/mL  
C) 19.3 g/mL  
D) 1.00 g/mL  
E) 0.0518 g/mL
- 55) Which one of the following substances will float in gasoline, which has a density of 0.66 g/mL? \_\_\_\_\_  
A) balsa wood      (density = 0.16 g/mL)  
B) table salt      (density = 2.16 g/mL)  
C) sugar      (density = 1.59 g/mL)  
D) mercury      (density = 13.6 g/mL)  
E) aluminum      (density = 2.70 g/mL)
- 56) What is the mass of 2.00 L of an intravenous glucose solution with a density of 1.15 g/mL? \_\_\_\_\_  
A) 1.15 kg      B) 0.015 kg      C) 0.023 kg      D) 2.30 kg      E) 0.58 kg
- 57) Mercury has a specific gravity of 13.6. How many milliliters of mercury have a mass of 0.35 kg? \_\_\_\_\_  
A) 25.7 mL      B) 26 mL      C) 0.026 mL      D) 0.0257 mL      E) 4760 mL
- 58) What is the density of a substance with a mass of 45.00 g and a volume of 26.4 mL? \_\_\_\_\_  
A) 0.59 g/mL  
B) 45.0 g/mL  
C) 1.70 g/mL  
D) 1.7 g/mL  
E) 0.587 g/mL
- 59) A liquid has a volume of 34.6 mL and a mass of 46.0 g. What is the density of the liquid? \_\_\_\_\_  
A) 0.752 g/mL  
B) 1330 g/mL  
C) 0.663 g/mL  
D) 1.00 g/mL  
E) 1.33 g/mL
- 60) What is the mass of 53 mL of ethanol, which has a density of 0.79 g/mL? \_\_\_\_\_  
A) 53 g      B) 67 g      C) 41.9 g      D) 67.1 g      E) 42 g
- 61) The density of a solution is 0.847 g/mL. Its specific gravity is \_\_\_\_\_  
A) 1.2.      B) 11.8.      C) 0.847.      D) 0.118.      E) 1.18.

- 62) The specific gravity of a solution is 1.18. Its density is 62) \_\_\_\_\_  
A) 1.18 g/mL.  
B) 11.8 g/mL.  
C) 1.2 g/mL.  
D) 0.118 g/mL.  
E) 0.847 g/mL.
- 63) 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? 63) \_\_\_\_\_  
A) 4.29 cm<sup>3</sup>      B) 53.2 cm<sup>3</sup>      C) 53 cm<sup>3</sup>      D) 4.3 cm<sup>3</sup>      E) 0.233 cm<sup>3</sup>
- 64) The ratio of the mass of a substance to its volume is its 64) \_\_\_\_\_  
A) conversion factor.  
B) weight.  
C) buoyancy.  
D) density.  
E) specific gravity.
- 65) Which of the following is often used to determine an individual's percentage of body fat? 65) \_\_\_\_\_  
A) temperature  
B) weight gain  
C) weight loss  
D) height  
E) density
- 66) A 50.0 mL urine sample has a mass of 50.7 g. The specific gravity of the urine is 66) \_\_\_\_\_  
A) 0.986 g/L.  
B) 1.014 g/mL.  
C) 0.986.  
D) 50.7.  
E) 1.01.

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

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

- 67) 504.85 67) \_\_\_\_\_
- 68) 8.3158 68) \_\_\_\_\_
- 69) 25 225 69) \_\_\_\_\_
- 70) 58.5422 70) \_\_\_\_\_
- 71)  $6.3477 \times 10^4$  71) \_\_\_\_\_
- 72) 399870 72) \_\_\_\_\_

73) 0.003 408 8

73) \_\_\_\_\_

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

74) 0.008 090 cm

74) \_\_\_\_\_

75) 680 000 km

75) \_\_\_\_\_

76) 28.050 km

76) \_\_\_\_\_

77) 0.0005 L

77) \_\_\_\_\_

78) 75.00 m

78) \_\_\_\_\_

79)  $2.043 \times 10^4$  mm

79) \_\_\_\_\_

80)  $6.1 \times 10^{-5}$  mL

80) \_\_\_\_\_

81)  $9.00 \times 10^6$  g

81) \_\_\_\_\_

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

82) The basic unit of mass in the metric system is the pound.

82) \_\_\_\_\_

83) The liter is a unit of volume in the metric system.

83) \_\_\_\_\_

84) The kelvin is a unit of length in the metric system.

84) \_\_\_\_\_

85) The number 0.0500 has four significant figures.

85) \_\_\_\_\_

86) The number 650 000 has two significant figures.

86) \_\_\_\_\_

87) The number  $3.10 \times 10^3$  has two significant figures.

87) \_\_\_\_\_

88) When the measured number 0.0090 is multiplied by the measured number 87.10, the answer has two significant figures.

88) \_\_\_\_\_

89) When the measured number 675 is added to the measured number 87.10, the answer should be rounded to the ones place.

89) \_\_\_\_\_

90) A  $\mu\text{g}$  is larger than a mg.

90) \_\_\_\_\_

91) There are 1000  $\mu\text{g}$  in a mg.

91) \_\_\_\_\_

92) A cubic centimeter is a unit of length.

92) \_\_\_\_\_

- |                                                          |            |
|----------------------------------------------------------|------------|
| 93) 1 kilogram is the same as 1000 mg.                   | 93) _____  |
| 94) 1 milliliter is the same as 1000 L.                  | 94) _____  |
| 95) There are 1000 cm in one meter.                      | 95) _____  |
| 96) A conversion factor between mL and L is 1000 L/1 mL. | 96) _____  |
| 97) A distance of 6.3 inches is the same as 16 cm.       | 97) _____  |
| 98) A stone that weighs 3.6 lbs has a mass of 7.9 kg.    | 98) _____  |
| 99) The density of water is 1 kg/mL.                     | 99) _____  |
| 100) Specific gravity has no units.                      | 100) _____ |

**MATCHING. Choose the item in column 2 that best matches each item in column 1.**

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

- |                 |                |            |
|-----------------|----------------|------------|
| 101) milliliter | A) mass        | 101) _____ |
| 102) mm         | B) temperature | 102) _____ |
| 103) gram       | C) distance    | 103) _____ |
| 104) K          | D) volume      | 104) _____ |
| 105) kilometer  | E) density     | 105) _____ |
| 106) milligram  |                | 106) _____ |

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

- |                                                          |             |            |
|----------------------------------------------------------|-------------|------------|
| 107) In the U.S. system there are 5280 feet in one mile. | A) exact    | 107) _____ |
|                                                          | B) measured |            |
| 108) The patient's blood sugar level is 350 mg/dL.       |             | 108) _____ |
| 109) There are 452 pages in a book.                      |             | 109) _____ |
| 110) The rabbit weighs 2.5 pounds.                       |             | 110) _____ |
| 111) There are 100 capsules in the bottle.               |             | 111) _____ |

112) I lost 14 pounds on my diet last month.

A) measured

112) \_\_\_\_\_

113) 1 liter is equal to 1.06 quarts.

113) \_\_\_\_\_

114) The patient's temperature is 100.1 °F.

114) \_\_\_\_\_

*Select the correct prefix to complete the equality.*

115) 1 g = \_\_\_\_\_ kg

A) 1

115) \_\_\_\_\_

116) 1 m = \_\_\_\_\_ mm

B) 100

116) \_\_\_\_\_

117) 1 cm = \_\_\_\_\_ mm

C) 0.001

117) \_\_\_\_\_

118) 1 dL = \_\_\_\_\_ mL

D) 0.1

118) \_\_\_\_\_

119) 1 kg = \_\_\_\_\_ g

E) 1000

119) \_\_\_\_\_

120) 1 pg = \_\_\_\_\_ g

F) 10

120) \_\_\_\_\_

121) 1 g = \_\_\_\_\_ pg

G)  $1 \times 10^{12}$

121) \_\_\_\_\_

122) 1 mL = \_\_\_\_\_ cc

H) 0.01

122) \_\_\_\_\_

I)  $1 \times 10^{-12}$

## Answer Key

Testname: UNTITLED69

- 1) C
- 2) A
- 3) E
- 4) A
- 5) B
- 6) D
- 7) B
- 8) D
- 9) C
- 10) E
- 11) C
- 12) D
- 13) C
- 14) D
- 15) C
- 16) C
- 17) A
- 18) D
- 19) B
- 20) A
- 21) B
- 22) E
- 23) C
- 24) D
- 25) D
- 26) A
- 27) B
- 28) A
- 29) A
- 30) C
- 31) B
- 32) A
- 33) D
- 34) E
- 35) B
- 36) E
- 37) C
- 38) C
- 39) D
- 40) D
- 41) D
- 42) E
- 43) C
- 44) C
- 45) A
- 46) D
- 47) B
- 48) B
- 49) D
- 50) B

## Answer Key

Testname: UNTITLED69

- 51) D
- 52) D
- 53) C
- 54) C
- 55) A
- 56) D
- 57) B
- 58) C
- 59) E
- 60) E
- 61) C
- 62) A
- 63) A
- 64) D
- 65) E
- 66) E
- 67) 505
- 68) 8.32
- 69) 25 200
- 70) 58.5
- 71)  $6.35 \times 10^4$
- 72)  $4.00 \times 10^5$
- 73) 0.003 41
- 74) 4
- 75) 2
- 76) 5
- 77) 1
- 78) 4
- 79) 4
- 80) 2
- 81) 3
- 82) FALSE
- 83) TRUE
- 84) FALSE
- 85) FALSE
- 86) TRUE
- 87) FALSE
- 88) TRUE
- 89) TRUE
- 90) FALSE
- 91) TRUE
- 92) FALSE
- 93) FALSE
- 94) FALSE
- 95) FALSE
- 96) FALSE
- 97) TRUE
- 98) FALSE
- 99) FALSE

## Answer Key

Testname: UNTITLED69

100) TRUE

101) D

102) C

103) A

104) B

105) C

106) A

107) A

108) B

109) A

110) B

111) A

112) A

113) A

114) A

115) C

116) E

117) F

118) B

119) E

120) I

121) G

122) A