$\qquad$
$\qquad$
$\qquad$

## Ch 3 practice test

## Matching

Match each item with the correct statement below.
a. absolute zero
e. mass
b. Kelvin temperature scale
f. significant figure
c. Celsius temperature scale
g. precision
d. weight
h. accuracy

1. closeness to true value
2. narrowness of range of measurements
3. known or estimated in a measurement
4. the quantity of matter an object contains
5. the lowest point on the Kelvin scale

- 6. the SI scale for temperature

7. the force of gravity on an object
8. the non-SI scale for temperature

## Multiple Choice

Identify the choice that best completes the statement or answers the question.
$\qquad$ 9. The expression of 5008 km in scientific notation is $\qquad$ .
a. $\quad 5.008 \times 10^{3} \mathrm{~km}$
b. $\quad 50.08 \times 10^{-4} \mathrm{~km}$
c. $5.008 \times 10^{-3} \mathrm{~km}$
d. $5.008 \times 10^{4} \mathrm{~km}$
10. What is the result of multiplying $2.5 \times 10^{10}$ by $3.5 \times 10^{-7}$ ?
a. $\quad 8.75 \times 10^{-3}$
b. $8.75 \times 10^{17}$
c. $8.8 \times 10^{3}$
d. $8.8 \times 10^{-17}$
11. The closeness of a measurement to its true value is a measure of its $\qquad$ $\ldots$
a. precision
c. reproducibility
b. accuracy
d. usefulness
12. Which of the following measurements contains two significant figures?
a. $\quad 0.00400 \mathrm{~L}$
b. 0.00404 L
c. $\quad 0.00044 \mathrm{~L}$
d. $\quad 0.00440 \mathrm{~L}$
13. When a test instrument is calibrated, does its accuracy, precision, or reliability improve?
a. precision
c. reliability
b. accuracy
d. all of the above
14. Which of the following measurements (of different masses) is the most accurate?
a. $\quad 3.1000 \mathrm{~g}$
b. $\quad 3.10000 \mathrm{~g}$
c. $\quad 3.12222 \mathrm{~g}$
d. $\quad 3.000000 \mathrm{~g}$
15. Which group of measurements is the most precise? (Each group of measurements is for a different object.)
a. $2 \mathrm{~g}, 3 \mathrm{~g}, 4 \mathrm{~g}$
b. $2.0 \mathrm{~g}, 3.0 \mathrm{~g}, 4.0 \mathrm{~g}$
c. $2 \mathrm{~g}, 2.5 \mathrm{~g}, 3 \mathrm{~g}$
d. $1 \mathrm{~g}, 3 \mathrm{~g}, 5 \mathrm{~g}$
16. Which of the following measurements is expressed to three significant figures?
a. $\quad 0.007 \mathrm{~m}$
b. $\quad 7077 \mathrm{mg}$
c. $\quad 7.30 \times 10^{-7} \mathrm{~km}$
d. $\quad 0.070 \mathrm{~mm}$
17. In the measurement 0.503 L , which digit is the estimated digit?
a. 5
b. the 0 immediately to the left of the 3
c. 3
d. the 0 to the left of the decimal point
18. How many significant figures are in the measurement 0.0034 kg ?
a. two
c. five
b. four
d. This cannot be determined.
19. How many significant figures are in the measurement $40,500 \mathrm{mg}$ ?
a. two
c. four
b. three
d. five
20. How many significant figures are in the measurement 811.40 grams?
a. two
c. four
b. three
d. five
21. Express the sum of 7.68 m and 5.0 m using the correct number of significant digits.
a. $\quad 12.68 \mathrm{~m}$
b. $\quad 12.7 \mathrm{~m}$
c. 13 m
d. $\quad 10 \mathrm{~m}$
22. What is the measurement 1042 L rounded off to two significant digits?
a. $\quad 1.0 \times 10^{3} \mathrm{~L}$
b. $\quad 1040 \mathrm{~L}$
c. $\quad 1050 \mathrm{~L}$
d. $1.1 \times 10^{3} \mathrm{~L}$
23. When multiplying and dividing measured quantities, the number of significant figures in the result should be equal to the number of significant figures in $\qquad$ _.
a. all of the measurements
b. the least and most precise measurements
c. the most precise measurement
d. the least precise measurement
24. What is the volume of a salt crystal measuring $2.44 \times 10^{-2} \mathrm{~m}$ by $1.4 \times 10^{-3} \mathrm{~m}$ by $8.4 \times 10^{-3} \mathrm{~m}$ ?
a. $\quad 2.9 \times 10^{-7} \mathrm{~m}^{3}$
b. $2.9 \times 10^{-6} \mathrm{~m}^{3}$
c. $2.9 \times 10^{-5} \mathrm{~m}^{3}$
d. $\quad 2.9 \times 10^{-4} \mathrm{~m}^{3}$
25. What quantity is represented by the metric system prefix centi-?
a. 1000
b. 100
c. $1 / 10$
d. $1 / 100$
26. The chief advantage of the metric system over other systems of measurement is that it $\qquad$ -.
a. has more units
c. is in French
b. is in multiples of 10
d. is derived from nature itself
27. Which of the following units is NOT an official SI unit?
a. kilogram
c. mole
b. ampere
d. liter
28. Which of the following volumes is the smallest?
a. one microliter
c. one milliliter
b. one liter
d. one deciliter
29. What is the SI unit of mass?
a. liter
c. candela
b. joule
d. kilogram
30. What is the temperature of absolute zero measured in ${ }^{\circ} \mathrm{C}$ ?
a. $-373^{\circ} \mathrm{C}$
b. $-273^{\circ} \mathrm{C}$
c. $-173^{\circ} \mathrm{C}$
d. $-73^{\circ} \mathrm{C}$
31. Which temperature scale has no negative temperatures?
a. Celsius
c. Joule
b. Fahrenheit
d. Kelvin
32. What is the boiling point of water in kelvins?
a. 0 K
b. $\quad 100 \mathrm{~K}$
c. $\quad 273 \mathrm{~K}$
d. $\quad 373 \mathrm{~K}$
33. Which of the following mass units is the largest?
a. 1 cg
b. 1 dg
c. 1 mg
d. 1 ng
34. The weight of an object $\qquad$ .
a. is the same as its mass
c. is not affected by gravity
b. depends on its location
d. is always the same
35. What is the temperature $-34^{\circ} \mathrm{C}$ expressed in kelvins?
a. 139 K
b. 207 K
c. $\quad 239 \mathrm{~K}$
d. 339 K
36. Chlorine boils at 239 K . What is the boiling point of chlorine expressed in degrees Celsius?
a. $93^{\circ} \mathrm{C}$
b. $34^{\circ} \mathrm{C}$
c. $-61^{\circ} \mathrm{C}$
d. $-34^{\circ} \mathrm{C}$
37. What is the quantity 0.0075 meters expressed in centimeters? Use the table above to help you.
a. $\quad 0.075 \mathrm{~cm}$
b. 0.75 cm
c. $\quad 7.5 \mathrm{~cm}$
d. 70.5 cm
38. What is the quantity 7896 millimeters expressed in meters? Use the table above to help you.
a. $\quad 7.896 \mathrm{~m}$
b. $\quad 78.96 \mathrm{~m}$
c. $\quad 789.6 \mathrm{~m}$
d. $789,600 \mathrm{~m}$
39. What is the quantity 987 milligrams expressed in grams? Use the table above to help you.
a. 0.000987 g
b. 0.987 g
c. $\quad 9.87 \mathrm{~g}$
d. $98,700 \mathrm{~g}$
40. Which of the following equalities is NOT correct? Use the table above to help you.
a. $\quad 100 \mathrm{cg}=1 \mathrm{~g}$
b. $\quad 1000 \mathrm{~mm}=1 \mathrm{~m}$
c. $1 \mathrm{~cm}^{3}=1 \mathrm{~mL}$
d. $10 \mathrm{~kg}=1 \mathrm{~g}$
41. The quantity 44 liters expressed in cubic meters is $\qquad$
a. $\quad 0.000044 \mathrm{~m}^{3}$
b. $\quad 440000 \mathrm{~m}^{3}$
c. $\quad 0.44 \mathrm{~m}^{3}$
d. $0.044 \mathrm{~m}^{3}$
42. What is the density of an object having a mass of 8.0 g and a volume of $25 \mathrm{~cm}^{3}$ ?
a. $0.32 \mathrm{~g} / \mathrm{cm}^{3}$
b. $\quad 2.0 \mathrm{~g} / \mathrm{cm}^{3}$
c. $\quad 3.1 \mathrm{~g} / \mathrm{cm}^{3}$
d. $200 \mathrm{~g} / \mathrm{cm}^{3}$
43. What is the volume of 80.0 g of ether if the density of ether is $0.70 \mathrm{~g} / \mathrm{mL}$ ?
a. $\quad 5.6 \times 10^{1}$
b. $\quad 1.1 \times 10^{2}$
c. $8.8 \times 10^{-3}$
d. $\quad 8.0 \times 10^{1}$
44. As the density of a substance increases, the volume of a given mass of that substance $\qquad$ -.
a. increases
c. decreases
b. is not affected
d. fluctuates

## Ch 3 practice test

## Answer Section

## MATCHING

1. ANS: H OBJ: 3.1.2
2. ANS: G OBJ: 3.1.2
3. ANS: F OBJ: 3.1.3
4. ANS: E OBJ: 3.2.1
5. ANS: A OBJ: 3.2.1
6. ANS: B OBJ: 3.2.1
7. ANS: D OBJ: 3.2.2
8. ANS: C OBJ: 3.2.2

PTS: 1

PTS: 1
DIF: L1

DIF: L1

DIF: L1

DIF: L1

DIF: L1

DIF: L1

DIF: L1
STA: Ch.4.d
DIF: L1

PTS: 1

PTS: 1

PTS: 1
STA: Ch.4.f
PTS: 1
STA: Ch.4.d
PTS: 1

PTS: 1

PTS: 1
DIF: L1

DIF: L2

DIF: L1

DIF: L1

DIF: L2

DIF: L2

DIF: L2

DIF: L2

DIF: L1

DIF: L1

DIF: L1

REF: p. 63
REF: p. $63 \mid$ p. 71

REF: p. 64

REF: p. 66

REF: p. 64

REF: p. 64

REF: p. 64
REF: p. 66
REF: p. 66

REF: p. 66

REF: p. 66
20. ANS: D

OBJ: 3.1.3
21. ANS: B OBJ: 3.1.3
22. ANS: A OBJ: 3.1.3
23. ANS: D OBJ: 3.1.3
24. ANS: A

OBJ: 3.1.3
25. ANS: D

OBJ: 3.2.1
26. ANS: B OBJ: 3.2.1
27. ANS: D OBJ: 3.2.1
28. ANS: A OBJ: 3.2.1
29. ANS: D OBJ: 3.2.1
30. ANS: B OBJ: 3.2.1
31. ANS: D

OBJ: 3.2.1
32. ANS: D

OBJ: 3.2.1
33. ANS: B OBJ: 3.2.1
34. ANS: B OBJ: 3.2.2
35. ANS: C OBJ: 3.2.3
36. ANS: D

OBJ: 3.2.3
37. ANS: B OBJ: 3.3.2
38. ANS: A OBJ: 3.3.2
39. ANS: B OBJ: 3.3.2
40. ANS: D OBJ: 3.3.2
41. ANS: D OBJ: 3.3.3
42. ANS: A OBJ: 3.4.1
43. ANS: B OBJ: 3.4.1

PTS: 1 DIF: L1
PTS: 1
DIF: L1
DIF: L2
DIF: L2
DIF: L3
DIF: L1
DIF: L1
DIF: L1
DIF: L1
DIF: L1
DIF: L1
DIF: L1
DIF: L1
DIF: L2
DIF: L2
DIF: L1
DIF: L2
DIF: L1
DIF: L1
DIF: L1
DIF: L2
DIF: L3
DIF: L2
DIF: L2

REF: p. 66
REF: p. 68 | p. 70
REF: p. $66 \mid$ p. 68
REF: p. 68 | p. 71
REF: p. 68
REF: p. 74
REF: p. 73
REF: p. 73
REF: p. $74 \mid$ p. 75
REF: p. 76
REF: p. 77
REF: p. 77
REF: p. 77
REF: p. 74 | p. 76
REF: p. 76
REF: p. 77 | p. 78
REF: p. $77 \mid$ p. 78
REF: p. 84
REF: p. 84
REF: p. 84
REF: p. 84
REF: p. 84
REF: p. $90 \mid$ p. 91
REF: p. 91
44. ANS: C

PTS: 1
DIF: L2
REF: p. 91
OBJ: 3.4.2

