4) All of the following are base units of the SI system except:
   A) kilogram.
   B) kelvin.
   C) meter.
   D) volt.

   Answer: D
   Diff: 1 *Page Ref: Sec. 15–1.6*

5) Select the list which contains only SI basic units.
   A) liter, meter, second, watt
   B) joule, kelvin, kilogram, watt
   C) candela, kelvin, meter, second
   D) joule, newton, second, watt

   Answer: C
   Diff: 1 *Page Ref: Sec. 1.5–1.6*

6) How many basic units does the SI system have?
   A) four
   B) five
   C) seven
   D) ten

   Answer: C
   Diff: 1 *Page Ref: Sec. 1.5–1.6*

7) The base SI unit of time is
   A) hour.
   B) minute.
   C) second.
   D) millisecond.

   Answer: C
   Diff: 1 *Page Ref: Sec. 1.5–1.6*

8) In the CGS system, what are the fundamental units?
   A) Newton, centimeter, second
   B) kilogram, meter, second
   C) gram, centimeter, minute
   D) gram, centimeter, second

   Answer: D
   Diff: 2 *Page Ref: Sec. 1.5–1.6*

9) The metric prefix for one one–thousandth is

A) milli.

B) centi.

C) kilo.

D) mega.

Answer: A
Diff: 1 *Page Ref: Sec. 1.5–1.6*

10) The metric prefix for one one–hundredth is

A) milli.

B) centi.

C) kilo.

D) mega.

Answer: B
Diff: 1 *Page Ref: Sec. 1.5–1.6*

11) The metric prefix for one thousand is

A) milli.

B) centi.

C) kilo.

D) mega.

Answer: C
Diff: 1 *Page Ref: Sec. 1.5–1.6*

12) Express the number 0.02 days using a prefix of Table 1–4.

A) 2 decidays

B) 2 centidays

C) 2 millidays

D) 2 microdays

Answer: B
Diff: 1 *Page Ref: Sec. 1.5–1.6*

13) What is the conversion factor between km/h and m/s?

A) 0.0278 m/s

B) 0.278 m/s

C) 3.60 m/s

D) 16.7 m/s

Answer: B
Diff: 1 *Page Ref: Sec. 1.5–1.6*

14) What is the conversion factor between km/h^2 and m/s^2?

A) $7.72 \times 10^{-6}\ \text{m/s}^2$

B) $2.78 \times 10^{-1}\ \text{m/s}^2$

C) $1.30 \times 10^{4}\ \text{m/s}^2$

D) $3.60\ \text{m/s}^2$

Answer: A
Diff: 1 *Page Ref: Sec. 1.5–1.6*

15) What is the conversion factor between cm^2 and m^2?

A) $0.01\ \text{m}^2/\text{cm}^2$

B) $0.0001\ \text{m}^2/\text{cm}^2$

C) $100\ \text{m}^2/\text{cm}^2$

D) $10000\ \text{m}^2/\text{cm}^2$

Answer: B
Diff: 1 *Page Ref: Sec. 1.5–1.6*

16) The position, x, of an object is given by the equation $x = A + Bt + Ct^2$, where t refers to time. What are the dimensions of A, B, and C?

A) distance, distance, distance

B) distance, time, time^2

C) distance, distance/time, distance/time^2

D) distance/time, distance/time^2, distance/time^3

Answer: C
Diff: 2 *Page Ref: Sec. 1.8*

Quantitative Problems

1) What is the percent uncertainty in the measurement 2.58 ± 0.15 cm?

A) 2.9%

B) 5.8%

C) 8.7%

D) 12%

Answer: B
Diff: 2 *Page Ref: Sec. 1.4*

2) What, approximately, is the percent uncertainty for the measurement 5.2?

A) 1%

B) 2%

C) 3%

D) 4%

Answer: B
Diff: 2 *Page Ref: Sec. 1.4*

3) What is the percent uncertainty in the area of a circle whose radius is 1.8×10^4 cm?

A) 1.1%

B) 5.6%

C) 11%

D) 56%

Answer: C
Diff: 3 *Page Ref: Sec. 1.4*

4) What is the volume, and its approximate uncertainty, of a sphere of radius 1.96 ± 0.01 m?

A) 31.5 ± 0.2 m^2

B) 31.5 ± 0.3 m^2

C) 31.5 ± 0.4 m^2

D) 31.5 ± 0.5 m^2

Answer: D
Diff: 3 *Page Ref: Sec. 1.4*

5) The number of significant figures in 10001 is

A) two.

B) three.

C) five.

D) six.

Answer: C
Diff: 1 *Page Ref: Sec. 1.4*

6) The number of significant figures in 0.01500 is

A) two.

B) three.

C) four.

D) five.

Answer: C
Diff: 1 *Page Ref: Sec. 1.4*

7) The number of significant figures in 0.040 is

A) one.

B) two.

C) three.

D) four.

Answer: B
Diff: 1 *Page Ref: Sec. 1.4*

8) Which of the following has three significant figures?

A) 305.0 cm

B) 0.0500 mm

C) 1.00081 kg

D) 8.060×10^{11} m^2

Answer: B
Diff: 1 *Page Ref: Sec. 1.4*

9) What is the sum of 2.67 + 1.976 + 2.1?

A) 6.7

B) 6.75

C) 6.746

D) 6.7460

Answer: A
Diff: 1 *Page Ref: Sec. 1.4*

10) What is the difference between 103.5 and 102.24?

A) 1.3

B) 1.26

C) 1.260

D) 1.2600

Answer: A
Diff: 1 *Page Ref: Sec. 1.4*

11) What is the product of 12.56 and 2.12?

A) 27

B) 26.6

C) 26.23

D) 26.627

Answer: B
Diff: 1 *Page Ref: Sec. 1.4*

12) What is the result of 2.43 ÷ 4.561?

A) 5.3278×10^{-1}

B) 5.328×10^{-1}

C) 5.33×10^{-1}

D) 5.3×10^{-1}

Answer: C
Diff: 1 *Page Ref: Sec. 1.4*