Chapter 1: MEASUREMENT

Choose the correct answer:

1. We can write the speed of light **(c = 299,000,000 m/s)** using the **scientific notation as:**

(a) 2.99 x 10 ^{8} (b) 29.9 x 10 ^{8} (c) 0.299 x 10 ^{8} (d) 299 x 10 ^{8}

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2. A car moving with a speed of **100 km/h**, what is its speed in **m/s**?

(a) 27.8 m/s   (b) 16.7 m/s   (c) 277.8 m/s   (d) 167.7 m/s

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3. We can express the very small number (**0.000 000 004 56**) using the scientific notation as:

(a) 4.56 x 10 $^{-8}$ (b) 4.56 x 10 $^{-9}$ (c) 4.56 x 10 $^{-10}$ (d) 4.56 x 10 $^{-11}$

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4. The conversion factor to convert **3 min to seconds** is

(a) $\dfrac{3600\,s}{3\min}$ (b) $\dfrac{60s}{3\min}$ (c) $\dfrac{3600s}{1\min}$ (d) $\dfrac{60s}{1\min}$

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5. Which of the following is **not a base quantity** ?

(a) speed   (b) mass   (c) length   (d) time

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6. How many **centimeters in 1 km**?

(a) 10^5 cm   (b) 10^2 cm   (c) 10 cm   (d) 10^4 cm

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7. The **conversion factor** to convert **hours to seconds** is:

(a) $\dfrac{1\ s}{3600\ h}$ (b) $\dfrac{3600\ h}{1\ s}$ (c) $\dfrac{1\ h}{3600\ s}$ (d) $\dfrac{3600\ s}{1\ h}$

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8. (**1 m = 3.281 ft**) then **1.5 ft/h** equals:

(a) 1.37 x 10^{-3} m/s   (b) 1.27 x 10^{-4} m/s   (c) 1645.8 m/s   (d) 17717.4 m/s

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9. A **square** with an **edge** of **1 cm** has an area of: (area = edge^2)

(a) 10^2 m^2 (b) 10^4 m^2 (c) 10^{-4} m^2 (d) 10^{-6} m^2

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10.   **10^3 gigawatts** is:

(a) 10^{12} watts   (b) 10^9 watts   (c) 10^{-6} watts   (d) 10^{-3} watts

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11.   The **conversion factor** to convert **10 kg to g** is:

(a) $\dfrac{10^{\,3}\,g}{1kg}$ (b) $\dfrac{10^{\,3}\,g}{10kg}$ (c) $\dfrac{1kg}{10^{\,3}\,g}$ (d) $\dfrac{10kg}{10^{\,3}\,g}$

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12. Which prefix is **true**?

(a) milli = 10^3 (b) micro = 10^{-9} (c) mega = 10^6 (d) pico = 10^9

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13.   **1 mm^2 =**

(a) 10^{-3} m^2 (b) 10^{-6} m^2 (c) 10^{-9} m^2 (d) 10^{-12} m^2

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14. If the **length, height, and width** of a **rectangular block** are **3 cm, 4 cm, and 5 cm** respectively, then the **volume** is

(a) 60 m^3 (b) 60 cm^3 (c) 60 m   (d) 60 cm

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15. If **1 mi = 1609 m** then **55 mi/h** is

(a) 15.4 m/s   (b) 24.6 m/s   (c) 66.3 m/s   (d) 88.1 m/s

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16. A **nanosecond** is:

(a) 10^9 s   (b) 10^{-9} s   (c) 10^{10} s   (d) 10^{-10} s

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17. A **gram** is:

(a) 10^{-6} kg   (b) 10^{-3} kg   (c) 10^6 kg   (d) 10^3 kg

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18. The **SI base unit** for **mass** is:

(a) gram   (b) pound   (c) kilogram   (d) kilopound

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19. There are **1000 meters** in

(a) 1 kilometer   (b) 10 kilometer   (c) 100 cm   (d) 10,000 cm

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20. How many **centimeters in 1 km**?

(a) 10^5 cm   (b) 10^2 cm   (c) 10 cm   (d) 10^4 cm

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21. The **conversion factor** to convert **hours to seconds** is:

(a) $\dfrac{1\ s}{3600\ h}$ (b) $\dfrac{3600\ h}{1\ s}$ (c) $\dfrac{1\ h}{3600\ s}$ (d) $\dfrac{3600\ s}{1\ h}$

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22. If **1m = 3.281 ft**, then **3.375 ft^3 =**

(a) 1.2 x 10^2 m^3 (b) 9.6 x 10^{-2} m^3 (c) 10.5 m^3 (d) 0.21 m^3

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23. 10^{-9} second is

(a) millisecond   (b) microsecond   (c) nanosecond   (d) gigasecond

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24. A **10 kilogram** =

(a) 10^6 g   (b) 10^3 g   (c) 10^4 g   (d) 10^2 g

25. **The SI units** of the base quantities (Length, Mass, Time) are:

(a) m, kg, s   (b) cm, g, s   (c) km, g, s   (d) km, kg, s

26. **(0.000 000 00636)** is equal to:

(a) 6.36×10^{-7} (b) 6.36×10^{-8} (c) 6.36×10^{-9} (d) 6.36×10^{-10}

27. **50 km =**

(a) 5×10^5 cm   (b) 5×10^6 cm   (c) 5×10^7 cm   (d) 5×10^8 cm

28. **100 g/cm^3 =**

(a) 10^3 kg/m^3 (b) 10^4 kg/m^3 (c) 10^5 kg/m^3 (d) 10^6 kg/m^3

29. **a microsecond is:**

(a) 10^6 s   (b) 10^{-6} s   (c) 10^9 s   (d) 10^{-9} s

30. The **conversion factor** to convert **6 m to mm** is:

(a) $\dfrac{10^3\,mm}{1m}$ (b) $\dfrac{10^3\,mm}{6m}$ (c) $\dfrac{1m}{10^3\,mm}$ (d) $\dfrac{6m}{10^3\,mm}$

Are the following statements (**True ✓**) or (**False ✗**) ?

31. The SI base unit for mass is gram.

(a) True   (b) False

32. There are 1209600 seconds in one week.

(a) True   (b) False