Name: _____ Date: _____

1. A right circular cylinder with a radius of 2.3 cm and a height of 1.4 cm has a total surface area of:
   A) 1.7×10^{-3} m^2
   B) 3.2×10^{-3} m^2
   C) 2.0×10^{-3} m^3
   D) 5.3×10^{-3} m^2
   E) 7.4×10^{-3} m^2

2. A square with an edge of exactly 1 cm has an area of:
   A) 10^{-6} m^2
   B) 10^{-4} m^2
   C) 10^{2} m^2
   D) 10^{4} m^2
   E) 10^{6} m^2

3. Suppose $A = B^n C^m$, where A has dimensions length · time, B has dimensions length^2 · time^{-1}, and C has dimensions length · time^2. Then the exponents n and m have the values:
   A) 2/3; 1/3
   B) 2; 3
   C) 4/5; –1/5
   D) 1/5; 3/5
   E) 1/2; 1/2

4. Which of the following weighs about a pound?
   A) 0.05 kg
   B) 0.5 kg
   C) 5 kg
   D) 50 kg
   E) 500 kg

5. The SI standard of time is based on:
   A) the daily rotation of the earth
   B) the frequency of light emitted by R^{86}
   C) the yearly revolution of the earth about the sun
   D) a precision pendulum clock
   E) none of these

6. The SI standard of length is based on:
   A) the distance from the north pole to the equator along a meridian passing through Paris
   B) wavelength of light emitted by Hg^{198}
   C) wavelength of light emitted by Kr^{86}
   D) a precision meter stick in Paris
   E) the speed of light

7. 1 m is equivalent to 3.281 ft. A cube with an edge of 1.5 ft has a volume of:
   A) 1.2×10^{2} m^3
   B) 9.6×10^{-2} m^3
   C) 10.5 m^3
   D) 9.5×10^{-2} m^3
   E) 0.21 m^3

8. There is no SI base unit for area because:
   A) an area has no thickness; hence no physical standard can be built
   B) we live in a three (not a two) dimensional world
   C) it is impossible to express square feet in terms of meters
   D) area can be expressed in terms of square meters
   E) area is not an important physical quantity

9. Which of the following is closest to a yard in length?
   A) 0.01 m
   B) 0.1 m
   C) 1 m
   D) 100 m
   E) 1000 m

10. A marble has a radius of 2 mm. The order of magnitude of the number of these marbles that can be placed in a jar with a radius of 3 cm and a height of 10 cm is:
   A) 10
   B) 10^2
   C) 10^4
   D) 10^6
   E) 19^8

11. $5.0 \times 10^4 \times 3.0 \times 10^6 =$
    A) 1.5×10^9
    B) 1.5×10^{10}
    C) 1.5×10^{11}
    D) 1.5×10^{12}
    E) 1.5×10^{13}

12. The number of significant figures in 15.0 is:
    A) 1
    B) 2
    C) 3
    D) 4
    E) 5

13. $1.513 + 27.3 =$
    A) 29
    B) 28.8
    C) 28.9
    D) 28.81
    E) 28.813

14. The order of magnitude of the number 0.0649 is:
    A) –2
    B) 6×10^{-2}
    C) 10^{-2}
    D) 10^{-1}
    E) 0.06

15. $5.0 \times 10^5 + 3.0 \times 10^6 =$
    A) 8.0×10^5
    B) 8.0×10^6
    C) 5.3×10^5
    D) 3.5×10^5
    E) 3.5×10^6

16. A cubic box with an edge of exactly 1 cm has a volume of:
    A) 10^{-9} m^3
    B) 10^{-6} m^3
    C) 10^{-3} m^3
    D) 10^{3} m^3
    E) 10^{6} m^3

17. A right circular cylinder with a radius of 2.3 cm and a height of 1.4 m has a volume of:
    A) 0.20 m^3
    B) 0.14 m^3
    C) 9.3×10^{-3} m^3
    D) 2.3×10^{-3} m^3
    E) 7.4×10^{-4} m^3

18. A nanosecond is:
    A) 10^{9} s
    B) 10^{-9} s
    C) 10^{-10} s
    D) 10^{-10} s
    E) 10^{-12} s

19. The SI base unit for mass is:
    A) gram
    B) pound
    C) kilogram
    D) ounce
    E) kilopound

20. 1 mi is equivalent to 1609 m so 55 mph is:
    A) 15 m/s
    B) 25 m/s
    C) 66 m/s
    D) 88 m/s
    E) 1500 m/s

Answer Key

1. D
2. B
3. D
4. B
5. E
6. E
7. B
8. D
9. C
10. C
11. C
12. C
13. B
14. D
15. E
16. B
17. D
18. B
19. C
20. B