

1. Which one of the following instruments is not used for the measurement of length?
 a) Atomic clock b) Vernier calipers
 c) Screw gauge d) Spherometer
2. A new unit of length is chosen such that the speed of light in vacuum is unity. What is the distance between the sun and the earth in terms of the new unit if light takes 8 min and 20 s to cover this distance?
 a) 300 b) 400 c) 500 d) 600
3. The ratio of the volume of the atom to the volume of the nucleus is of the order of
 a) 10^{10} b) 10^{15} c) 10^{20} d) 10^{25}
4. What is the volume occupied by one mole of an ideal gas at STP?
 a) 10.4 L b) 11.4 L c) 22.4 L d) 33.4 L
5. Light year is the unit of
 a) distance b) time c) speed d) intensity of light
6. What is the length of the arc of a circle of radius 30 cm which subtend an angle $\frac{\pi}{6}$ at the centre?
 a) 11.7 cm b) 14.7 cm c) 16.7 cm d) 15.7 cm
7. Which of the following is the smallest unit?
 a) millimeter b) angstrom c) fermi d) metre
8. Which of the following is unitless quantity?
 a) Pressure gradient b) Displacement gradient
 c) Force gradient d) Velocity gradient
9. How many wavelengths of Kr86 are there in one metre?
 a) 1553164.13 b) 1650763.73 c) 2348123.73 d) 652189.63
10. Which of the following is the most precise device for measuring length?
 a) A vernier calipers with 20 divisions on the vernier scale coinciding with 19 main scale divisions
 b) A screw gauge of pitch 1 mm and 100 divisions on the circular scale.
 c) A spherometer of pitch 0.1 mm and 100 divisions on the circular scale.
 d) An optical instrument that can measure length to within a wavelength of light.
11. The ratio of molar volume to atomic volume for 1 mole of hydrogen is (Take size of hydrogen molecule to be 1 Å)
 a) 7.1×10^4 b) 7.1×10^6 c) 7.1×10^{10} d) 7.1×10^8
12. Fathom is the unit to measure the
 a) speed of ship b) depth of sea
 c) distance of the ship d) speed of cyclone
13. 1 parsec is approximately equal to (where AU is astronomical unit)
 a) 2×10^5 AU b) 2×10^6 AU c) 2×10^8 AU d) 2×10^{10} AU
14. Which one of the following waves is used in SONAR?
 a) Infrared b) Ultraviolet c) Ultrasonic d) Light
15. If the size of bacteria is 1 micron, what will be the number of 0 in 1 m length?
 a) One hundred b) One crore c) One thousand d) One million
16. Which of the following properties of laser beam can be used to measure long distances?
 a) It is very Intense b) It is highly monochromatic

- c) It is an unidirectional beam of light d) All of these
17. Which one of the following methods is used to measure distance of a planet or a star from the earth?
 a) Echo method b) Parallax method c) Triangulation method d) None of these
18. The order of magnitude of the diameter of the earth is
 (Diameter of the earth is 1.28×10^7 m)
 a) 5 b) 6 c) 7 d) 8
19. Astronomical unit (AU) is the distance between earth and the sun. 1 AU is equal to
 a) 1.496×10^8 km b) 9.46×10^{12} km c) 3.084×10^{13} km d) 4.596×10^{15} km
20. Which of the following is not unit of length?
 a) angstrom b) fermi c) barn d) parsec
21. If the unit of force is 100 N, unit of length is 10 m and unit of time is 100 s, what is the unit of mass in this system of units?
 a) 10^3 kg b) 10^4 kg c) 10^5 kg d) 10^6 kg
22. The device used for measuring the mass of atoms and molecules is
 a) spring balance b) torsional balance c) mass spectrograph d) common balance
23. 10^{-3} gram is called
 a) kilogram b) milligram c) decigram d) microgram
24. Which of the following statements is incorrect regarding mass?
 a) It is a basic property of matter.
 b) The SI unit of mass is kg.
 c) The mass of an atom is expressed in u.
 d) It depends upon the temperature, pressure or location of the object in space.
25. 1 unified atomic mass unit (1 u) is equal to
 a) 1.66×10^{-25} kg b) 1.66×10^{-27} kg
 c) 1.66×10^{-29} kg d) 1.66×10^{-31} kg