

Topic :- UNITS AND MEASUREMENTS

- What is the power of a 100 W bulb in CGS units?
a) 10^6ergs^{-1} b) 10^7ergs^{-1} c) 10^9ergs^{-1} d) 10^{11}ergs^{-1}
- The number of particles given by $n = -D \frac{n_2 - n_1}{x_2 - x_1}$ are crossing a unit area perpendicular to x -axis in unit time, where n_1 and n_2 are the number of particles per unit volume for the values x_1 and x_2 of x respectively. Then the dimensional formula of diffusion constant D is
a) $[M^0 L T^0]$ b) $[M^0 L^2 T^{-4}]$ c) $[M^0 L T^{-3}]$ d) $[M^0 L^2 T^{-1}]$
- If C the restoring couple per unit radian twist and I is the moment of inertia, then the dimensional representation of $2\pi \sqrt{\frac{I}{C}}$ will be
a) $[M^0 L^0 T^{-1}]$ b) $[M^0 L^0 T]$ c) $[M^0 L T^{-1}]$ d) $[M L^2 T^{-2}]$
- The dimensions of electric potential are
a) $[ML^2 T^{-2} Q^{-1}]$ b) $[MLT^{-2} Q^{-1}]$ c) $[ML^2 T^{-1} Q]$ d) $[ML^2 T^{-2} Q]$
- Dimension of R is
a) $ML^2 T^{-1}$ b) $ML^2 T^{-3} A^{-2}$ c) $ML^{-1} T^{-2}$ d) None of these
- What is dimensional formula of thermal conductivity?
a) $[MLT^{-1} \theta^{-1}]$ b) $[MLT^{-3} \theta^{-1}]$ c) $[M^2 L T^{-3} \theta^{-2}]$ d) $[ML^2 T^{-2} \theta]$
- The temperature of a body on Kelvin scale is found to be X K. When it is measured by a Fahrenheit thermometer, it is found to be $X^{\circ}F$. Then X is
a) 301.25 b) 574.25 c) 313 d) 40
- Which of the following is the smallest unit
a) *Millimetre* b) *Angstrom* c) *Fermi* d) *Metre*
- Which one of the following does not have the same dimensions
a) Work and energy b) Angle and strain
c) Relative density and refractive index d) Planck constant and energy

10. The physical quantity which is not a unit of energy is
 a) Volt-coulomb b) MeV-sec c) Henry (ampere)² d) Farad-(volt)²
11. The dimensions of permittivity ϵ_0 are
 a) $A^2T^2M^{-1}L^{-3}$ b) $A^2T^4M^{-1}L^{-3}$ c) $A^{-2}T^{-4}ML^3$ d) $A^2T^{-4}M^{-1}L^{-3}$
12. The values of two resistors are $R_1 = (6 \pm 0.3) \text{ k}\Omega$ and $R_2 = (10 \pm 0.2) \text{ k}\Omega$. The percentage error in the equivalent resistance when they are connected in parallel is
 a) 5.125% b) 2% c) 3.125% d) 10.125%
13. The dimensional formula of magnetic induction B is
 a) $[M^0AL^2T^0]$ b) $[M^0AL^{-1}T^0]$ c) $[M^0AL^2T^0]$ d) $[ML^2T^{-2}A^{-1}]$
14. The value of universal gas constant is $R = 8.3 \text{ J/K-mol}$. The value of R in atmosphere litre per Kelvin mol
 a) 8.12 b) 0.00812 c) 81.2 d) 0.0812
15. A physical quantity is measured and its value is found to be nu where n = numerical value and u = unit. Then which of the following relations is true
 a) $n \propto u^2$ b) $n \propto u$ c) $n \propto \sqrt{u}$ d) $n \propto \frac{1}{u}$
16. SI unit of permittivity is
 a) $C^2m^2N^2$ b) $C^2m^{-2}N^{-1}$ c) $C^2m^2N^{-1}$ d) $C^{-1}m^2N^{-2}$
17. The work done by a battery is $W = \epsilon\Delta q$, where Δq change transferred by battery, ϵ = emf of the battery. What are dimensions of emf of battery?
 a) $[M^0L^0T^{-2}A^{-2}]$ b) $[ML^2T^{-3}A^{-2}]$ c) $[M^2L^0T^{-3}A^0]$ d) $[ML^2T^{-3}A^{-1}]$
18. If $x = a - b$, then the maximum percentage error in the measurement of x will be
 a) $\left(\frac{\Delta a + \Delta b}{a - b}\right) \times 100\%$ b) $\left(\frac{\Delta a}{a} - \frac{\Delta b}{b}\right) \times 100\%$
 c) $\left(\frac{\Delta a}{a - a} + \frac{\Delta b}{a - b}\right) \times 100\%$ d) $\left(\frac{\Delta a}{a - a} - \frac{\Delta b}{a - b}\right) \times 100\%$
19. The unit of potential energy is
 a) $g(\text{cm}/\text{sec}^2)$ b) $g(\text{cm}/\text{sec})^2$ c) $g(\text{cm}^2/\text{sec})$ d) $g(\text{cm}/\text{sec})$
20. The physical quantity having the dimensions $[M^{-1}L^{-3}A^2]$ is
 a) Resistance b) Resistivity
 c) Electrical conductivity d) Electromotive force