

Topic :- UNITS AND MEASUREMENTS

- The dimensional formula of magnetic flux is
a) $[MLT^{-2}A^{-1}]$ b) $[ML^2T^{-1}A^{-1}]$ c) $[ML^2T^{-1}A^{-2}]$ d) $[ML^2T^{-2}A^{-1}]$
- Which one of the following is not a fundamental SI unit?
a) Ampere b) Candela c) Newton d) Kelvin
- The dimensional formula for areal velocity is
a) $[M^0L^{-2}T]$ b) $[M^0L^{-2}T^{-1}]$ c) $[M^0L^2T^{-1}]$ d) $[M^0L^2T]$
- What are the units of $K = 1/4\pi\epsilon_0$
a) $C^2N^{-1}m^{-2}$ b) Nm^2C^{-2} c) Nm^2C^2 d) Unitless
- The dimensions of potential are the same as that of
a) Work b) Electric field per unit charge
c) Work per unit charge d) Force per unit charge
- The unit of L/R is (where L = inductance and R = Resistance)
a) *Sec* b) *Sec*⁻¹ c) *Volt* d) *Ampere*
- The unit of specific resistance is
a) *Ohm/cm*² b) *Ohm/cm* c) *Ohm - cm* d) *(Ohm - cm)*⁻¹
- Frequency is the function of density (ρ), length (a) and surface tension (T). Then its value is
a) $k\rho^{1/2}a^{3/2}/\sqrt{T}$ b) $k\rho^{3/2}a^{3/2}/\sqrt{T}$ c) $k\rho^{1/2}a^{3/2}/T^{3/4}$ d) None of these
- The units of modulus rigidity are
a) $N - m$ b) N/m c) $N - m^2$ d) N/m^2

10. A screw gauge gives the following reading when used to measure the diameter of a wire.
Main scale reading : 0 mm
Circular scale reading : 52 divisions
Given that 1 mm on main scale corresponds to
100 divisions of the circular scale.
The diameter of wire from the above data is
a) 0.052 cm b) 0.026 cm c) 0.005 cm d) 0.52 cm
11. The unit of the coefficient of viscosity in S.I. system is
a) $m/kg - s$ b) $m - s/kg^2$ c) $kg/m - s^2$ d) $kg/m - s$
12. A suitable unit for gravitational constant is
a) $kg-m \text{ sec}^{-1}$ b) $N m^{-1} \text{ sec}$ c) $N m^2 kg^{-2}$ d) $kg m \text{ sec}^{-1}$
13. The correct value of $0^\circ C$ on the Kelvin scale is
a) 273.15 K b) 272.85 K c) 273 K d) 273.2 K
14. The dimensional formula for Boltzmann's constant is
a) $[ML^2T^{-2}\theta^{-1}]$ b) $[ML^2T^{-2}]$ c) $[ML^0T^{-2}\theta^{-1}]$ d) $[ML^{-2}T^{-1}\theta^{-1}]$
15. Energy per unit volume represents
a) Pressure b) Force c) Thrust d) Work
16. Which of the following groups have different dimensions
a) Potential difference, EMF, voltage b) Pressure, stress, young's modulus
c) Heat , energy, work-done d) Dipole moment, electric flux, electric field
17. Farad is not equivalent to
a) $\frac{q}{V}$ b) qV^2 c) $\frac{q^2}{J}$ d) $\frac{J}{V^2}$
18. The velocity v of water waves may depend on their wavelength (λ), the density of water (ρ) and the acceleration due to gravity (g). The method of dimensions gives the relation between these quantities as
a) $v^2 \propto \lambda^{-1}\rho^{-1}$ b) $v^2 \propto g\lambda$ c) $v^2 \propto g\lambda\rho$ d) $g^{-1} \propto \lambda^3$
19. The dimensional formula for impulse is
a) $[MLT^{-1}]$ b) $[ML^{-1}T]$ c) $[M^{-1}LT^{-1}]$ d) $[ML^{-1}T^{-1}]$
20. A physical quantity is given by $X = [M^aL^bT^c]$. The percentage error in measurement of M, L and T are α, β and γ respectively. Then, the maximum % error in the quantity X is
a) $a\alpha + b\beta + c\gamma$ b) $a\alpha + b\beta - c\gamma$ c) $\frac{a}{\alpha} + \frac{b}{\beta} + \frac{c}{\gamma}$ d) None of these

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