PHYSICS COOKBOOK

UNITS AND DIMENSIONS SHEET 1

Q.1 Which pair have not equal dimensions-

(1) Energy and torque
(2) Force and impulse
(3) Angular momentum and Plank's constant
(4) Elastic modulus and pressure

Q.2 The dimension of Plank's constant equals to that of-

(1) Energy (2) Momentum
(3) Angular momentum (4) Power

Q.3 The dimensions of universal gravitational constant are-

(1) ML^2T^{-1} (2) $M^{-2}L^3T^{-2}$
(3) $M^{-2}L^2T^{-1}$ (4) $M^{-1}L^3T^{-2}$

Q.4 The ratio of the dimension of Plank's constant and that of the moment of inertia is the dimension of-

(1) Velocity
(2) Angular momentum
(3) Time
(4) Frequency

Q.5 The velocity v of a particle at time t is given by $v = at + \frac{b}{t+c}$, where a, b and c are constants. The dimensions of a, b and c are respectively.

(1) LT^{-2}, L and T (2) L^2, T and LT^2
(3) LT^2, LT and L (4) L, LT and T^2

Q.6 'Parsec' is the unit of-

(1) time
(2) distance
(3) frequency
(4) angular acceleration

Q.7 Dimension of electrical resistance is-

(1) $ML^2T^{-3}A^{-1}$ (2) $ML^2T^{-3}A^{-2}$
(3) $ML^3T^{-3}A^{-2}$ (4) $ML^{-1}L^3T^3A^2$

Q.8 Which two of the following five physical parameters have the same dimensions ?

(a) energy density
(b) refractive index
(c) dielectric constant
(d) Young's modulus
(e) magnetic field
(1) (a) and (d) (2) (a) and (e)
(3) (b) and (d) (4) (c) and (e)

Q.9 If the dimensions of a physical quantity are given by $M^aL^bT^c$, then the physical quantity will be-

(1) Force if a = 0, b = –1, c = –2
(2) Pressure if a = 1, b = –1, c = –2
(3) Velocity if a = 1, b = 0, c = –1
(4) Acceleration if a = 1, b = 1, c = –2

Q.10 The dimension of $(\mu_0 \in_0)^{-1/2}$ are :

(1) $[L^{-1/2}T^{1/2}]$ (2) $[L^{1/2}\ T^{-1/2}]$
(3) $[L^{-1}T]$ (4) $[LT^{-1}]$

Q.11 The density of a material in CGS system of units is 4 g/cm^3. In a system of units in which unit of length is 10 cm and unit of mass is 100g, the value of density of material will be –

(1) 0.04 (2) 0.4
(3) 40 (4) 400

Answer Keys

Q.No.	1	2	3	4	5	6	7	8	9	10	11
Ans.	2	2	3	4	4	1	2	2	1	4	3