

AIPMT 2006

1. The velocity v of a particle at time t is given by

$$v = at + \frac{b}{t+c}, \text{ where } a, b \text{ and } c \text{ are constants. The}$$

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

AIPMT 2007

2. Dimensions of electrical resistance is :-

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

AIPMT 2008

3. 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), (d) (2) (a), (e)
 (3) (b), (d) (4) (c), (e)

4. If the error in the measurement of radius of a sphere is 2 % then the error in the determination of volume of the sphere will be :-

- (1) 8% (2) 2 %
 (3) 4 % (4) 6%

AIPMT 2009

5. If the dimensions of a physical quantity are given by $M^a L^b T^c$, 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 $a = 1$, $b = 1$, $c = -2$

AIPMT (Pre) 2010

6. The dimensions of $\frac{1}{2} \epsilon_0 E^2$, where ϵ_0 is permittivity

of free space and E is electric field, is :-

- (1) $[MLT^{-1}]$ (2) $[ML^2 T^{-2}]$
 (3) $[ML^{-1} T^{-2}]$ (4) $[ML^2 T^{-1}]$

AIPMT (Mains) 2010

7. A student measures the distance traversed in free fall of a body, initially at rest in a given time. He uses this data to estimate g , the acceleration due to gravity. If the maximum percentage errors in measurement of the distance and the time are e_1 and e_2 respectively, the percentage error in the

estimation of g is :-

- (1) $e_1 + 2e_2$ (2) $e_1 + e_2$
 (3) $e_1 - 2e_2$ (4) $e_2 - e_1$

AIPMT (Pre) 2011

8. The dimensions of $(\mu_0 \epsilon_0)^{-1/2}$ are :-

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

AIPMT (Mains) 2011

9. 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 100 g, the value of density of material will be :-

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

AIPMT (Pre) 2012

10. If voltage across a bulb rated 220 Volt 100 Watt drops by 2.5% of its rated value, the percentage of the rated value by which the power would decrease is :-

- (1) 5% (2) 10%
 (3) 20% (4) 2.5%

NEET-UG 2013

11. In an experiment four quantities a , b , c and d are measured with percentage errors 1%, 2%, 3% and 4% respectively. Quantity P is calculated as follows

$$P = \frac{a^3 b^2}{cd}, \text{ percentage error in } P \text{ is :-}$$

- (1) 4% (2) 14% (3) 10% (4) 7%

AIPMT 2014

12. If force (F), velocity (V) and time (T) are taken as fundamental units, then the dimensions of mass are:

- (1) $[F V T^{-1}]$ (2) $[F V T^{-2}]$
 (3) $[F V^{-1} T^{-1}]$ (4) $[F V^{-1} T]$

AIPMT 2015

13. If energy (E), velocity (V) and time (T) are chosen as the fundamental quantities, the dimensional formula of surface tension will be :

- (1) $[EV^{-1} T^{-2}]$ (2) $[EV^{-2} T^{-2}]$
 (3) $[E^{-2} V^{-1} T^{-3}]$ (4) $[EV^{-2} T^{-1}]$

