



Video Solution on Website:-

<https://physicsaholics.com/home/courseDetails/49>

Video Solution on YouTube:-

<https://youtu.be/fe1L15gCivs>

Written Solution on Website:-

<https://physicsaholics.com/note/notesDetails/69>

- Q 1. In $S = a + bt + ct^2$, S is measured in meters and t in seconds. The unit of c is:
(a) ms^{-2} (b) m
(c) ms^{-1} (d) None
- Q 2. A physical quantity x depends on quantities y and z as follows:
 $x = Ay + B \tan(Cz)$, where A , B and C are constants. Which of the following do not have the same dimensions?
(a) x and B (b) C and z^{-1}
(c) y and B/A (d) x and A
- Q 3. In the relation $P = \frac{\alpha}{\beta} e^{-\frac{\alpha z}{k\theta}}$, P is pressure, Z is the distance, k is Boltzmann constant and θ is the temperature. The dimensional formula of β will be
(Hint:- Unit of Boltzmann constant is J/K)
(a) $[M^0 L^2 T^0]$ (b) $[M^1 L^2 T^1]$
(c) $[M^1 L^0 T^{-1}]$ (d) $[M^0 L^2 T^{-1}]$
- Q 4. The radius of nucleus is $r = r_0 A^{1/3}$, where A is mass number. The dimensions of r_0 is:
(a) $[M L T^{-2}]$ (b) $[M^0 L^0 T^{-1}]$
(c) $[M^0 L T^0]$ (d) none of these
- Q 5. A and B have different dimensions. Then which of the following relation will be meaningful?
(a) $\left[\frac{A}{B}\right]$ (b) $[A - B]$
(c) $[A + B]$ (d) $\left[e^{\frac{A}{B}}\right]$
- Q 6. If $v = \frac{A}{t} + Bt^2 + ct^3$ where v is velocity, t is time A , B and C are constant then the dimensional formula of B is:
(a) $[M^0 L T^0]$ (b) $[ML^0 T^0]$
(c) $[M^0 L^0 T^0]$ (d) $[M^0 L T^{-3}]$
- Q 7. $X = 3YZ^2$ find dimensions of Y in (MKSA) system, if X and Z are the dimensions of capacitance and magnetic field respectively:
[Hint:- Unit of capacitance of a capacitor is $coulomb^2/J$ and unit of magnetic field = $kg.s^{-2}.A^{-1}$]
(a) $[M^{-3}L^{-2}T^{-4}A^{-1}]$ (b) $[ML^{-2}]$



(c) $[M^{-3}L^{-2}T^4A^4]$

(d) $[M^{-3}L^{-2}T^8A^4]$

Q 8. The dimensions of $\frac{a}{b}$ in the equation $P = \frac{a-t^2}{bx}$ where P is pressure, x is distance and t is time are:

(a) M^2LT^{-3}

(b) MT^{-2}

(c) ML^3T^{-1}

(d) LT^{-3}

Q 9. The division of energy by time is X. The dimensional formula of X is same as that of [Hint:- Momentum = mass \times velocity, Power = force \times velocity, Torque = Force \times perpendicular distance]

(a) Momentum

(b) Power

(c) Torque

(d) None of these

Q 10. Write the dimensions of $a \times b$ in the relation $E = \frac{b-x^2}{at}$. Where E is the energy, x is the displacement and t is time

(a) ML^2T

(b) $M^{-1}L^2T^1$

(c) ML^2T^{-2}

(d) MLT^{-2}

Answer Key

Q.1 a	Q.2 d	Q.3 a	Q.4 c	Q.5 a
Q.6 d	Q.7 d	Q.8 b	Q.9 b	Q.10 b