

~~Solve these questions~~

10. Find the dimensions of $(a \times b)$ in the equation :
$$E = \frac{b - x^2}{at}$$
 ; where E is energy, x is distance and t is time.
(Ans. $M^{-1} L^2 T$)

11. Find the dimensions of (a/b) in the equation :

$$P = \frac{a - t^2}{bx}$$

where P is pressure, x is distance and t is time.

(Ans. MT^{-2})

12. Time period of an oscillating drop of radius r , density ρ and surface tension S is : $t = K \sqrt{\frac{\rho r^3}{S}}$

Check the correctness of the relation. [Himachal 04]

(Ans. correct)

correct.

5. The rate of flow (V) of a liquid flowing through a pipe of radius r and a pressure gradient (P/l) is given by Poiseuille's equation : $V = \frac{\pi P r^4}{8 \eta l}$

Check the dimensional consistency of this equation.

(Ans. Correct)

6. Test if the following equation is dimensionally correct :

$$h = \frac{2 S \cos \theta}{r \rho g}$$

where h = height, S = surface tension, ρ = density, r = radius, and g = acceleration due to gravity.

(Ans. Correct)