Yakeen NEET 2.0 2026

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Units and Measurements

DPP: 5

Q1 The potential energy of a particle series with distance x from a fixed origin as $U = \frac{A\sqrt{x}}{x^2+B}$, where A and B are dimensional constants then dimensional formula for AB is:

(A) $\left[\mathrm{ML}^{7/2}\ \mathrm{T}^{-2}\right]$

(B) $\left[\mathrm{ML}^{11/2}\ \mathrm{T}^{-2}\right]$

(C) $\left[\mathrm{M}^2\ \mathrm{L}^{9/2}\ \mathrm{T}^{-2}\right]$

(D) $\left[\mathrm{ML}^{13/2}\ \mathrm{T}^{-3}\right]$

Q2 If force on a particle having uniform circular motion is given by $F = M^a V^b R^c$. Then what will be the value of a, b, c ? (M = mass of particle, V= velocity of particle, R = radius of circle)

(A) $1, 1, 1$ (B) $2, 1, 3$

(C) $1, 2, -1$ (D) $2, 2, 2$

Q3 $\mathrm{E}, \mathrm{m}, \mathrm{L}, \mathrm{G}$ denote energy, mass, angular momentum & gravitation constant respectively. The dimensions of $\frac{EL^2}{m^5G^2}$ will be that of

(A) Angle (B) Length

(C) Mass (D) Time

Q4 Gas bubble oscillates with a time period T proportional of $P^{\mathrm{a}} d^{\mathrm{b}} E^{\mathrm{c}}$ where P is pressure, d is the density and E is the energy. The values of $a, b \& c$ are

(A) $a = \frac{1}{2}, b = -\frac{1}{3}, c = \frac{1}{2}$

(B) $a = -\frac{5}{6}, b = \frac{1}{3}, c = \frac{1}{2}$

(C) $a = -\frac{5}{6}, b = \frac{1}{2}, c = \frac{1}{3}$

(D) $a = \frac{3}{2}, b = -\frac{1}{3}, c = \frac{1}{2}$

Q5 Frequency is the function of density (ρ), length (a) and surface tension (T). The formula of frequency is:

(A) $\frac{k\rho^{1/2}a^{3/2}}{\sqrt{T}}$

(B) $\frac{k\rho^{3/2}a^{3/2}}{\sqrt{T}}$

(C) $\frac{k\rho^{1/2}a^{3/2}}{T^{3/4}}$

(D) None of these

Q6 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

Q7 If energy (E), velocity (V) and time (T) are chosen as the fundamental quantities, the dimensional formula of surface tension will be

(A) $\left[\mathrm{EV}^{-1}\ \mathrm{T}^{-2}\right]$

(B) $\left[\mathrm{EV}^{-2}\ \mathrm{T}^{-2}\right]$

(C) $\left[\mathrm{E}^{-2}\ \mathrm{V}^{-1}\ \mathrm{T}^{-3}\right]$

(D) $\left[\mathrm{EV}^{-2}\ \mathrm{T}^{-1}\right]$

Q8 If force F, Length L and time T are chosen as fundamental quantities, the dimensional formula for Mass is

(A) $\mathrm{F}\ \mathrm{L}\ \mathrm{T}$

(B) $F^{-1}L^{-1}T^{-2}$

(C) $F^{-2}L^{-2}T^{-2}$

(D) $F^1L^{-1}T^2$

Answer Key

Q1	(B)	Q5	(D)
Q2	(C)	Q6	(D)
Q3	(A)	Q7	(B)
Q4	(C)	Q8	(D)