Yakeen NEET 2.0 2026

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Units and Measurements

DPP: 2

Q1 If $x = at + bt^2$, where x is the distance travelled by the body in kilometers while t is the time in seconds, then the units of b are
(A) $\mathrm{km/s}$
(B) $\mathrm{km - s}$
(C) $\mathrm{km/s^2}$
(D) $\mathrm{km - s^2}$

Q2 The dimensions $\mathrm{ML^{-1}\ T^{-2}}$ may correspond to
(A) Work done by a force
(B) Linear momentum
(C) Pressure
(D) Energy per unit area

Q3 Choose the wrong statement
(A) All quantities may be represented dimensionally in terms of the base quantities.
(B) A base quantity cannot be represented dimensionally in terms of the rest of the base quantities.
(C) The dimension of a base quantity in other base quantities maybe zero.
(D) The dimension of a derived quantity is never zero in any base quantity.

Q4 A force F is given by $F = at + bt^2$, where t is time. What are the dimensions of a and b
(A) $\mathrm{MLT^{-3}}$ and $\mathrm{ML^2\ T^{-4}}$
(B) $\mathrm{MLT^{-3}}$ and $\mathrm{MLT^{-4}}$
(C) $\mathrm{MLT^{-1}}$ and $\mathrm{MLT^0}$
(D) $\mathrm{MLT^{-4}}$ and $\mathrm{MLT^1}$

Q5 A wave is represented by $\mathrm{y = a\sin(At - Bx + C)}$ where $\mathrm{A, B, C}$ are constants and t is in seconds and x is in meter. The dimensions of $\mathrm{A, B, C}$ are
(A) $\mathrm{T^{-1},\ L, M^0\ L^0\ T^0}$
(B) $\mathrm{T^{-1},\ L^{-1}, M^0\ L^0\ T^0}$
(C) $\mathrm{T,\ L,\ M}$
(D) $\mathrm{T^{-1},\ L^{-1}, M^{-1}}$

Q6 Given that the displacement of an oscillating particle is given by $\mathrm{y = A\sin(Bx + Ct + D)}$. The dimensional formula for $\mathrm{(ABCD)}$ is:
(A) $\mathrm{[M^0\ L^{-1}\ T^0]}$
(B) $\mathrm{[M^0\ L^0\ T^{-1}]}$
(C) $\mathrm{[M^0\ L^{-1}\ T^{-1}]}$
(D) $\mathrm{[M^0\ L^0\ T^0]}$

Q7 $\alpha = \frac{F}{v^2}\sin(\beta t)$ (where v = velocity, F = Force).Find the dimension of α and β
(A) $M^1\ \mathrm{L}^{-1}T^0, M^1L^{-1}T^0$
(B) $M^1L^1T^{-2}, M^1L^{-1}T^0$
(C) $M^{-1}L^{-1}T^{-2}, M^1L^1T^{-2}$
(D) $M^1L^{-1}T^0, M^0L^0T^{-1}$

Q8 The equation for the position of a train starting at $x = 0$ m is given by $x = \frac{1}{2}at^2 + bt^3$. The dimensions of b are
(A) $\mathrm{T^3}$
(B) $\mathrm{LT^{-3}}$
(C) $\mathrm{LT^{-2}}$
(D) $\mathrm{LT^{-1}}$

Q9 The angular wave number is defined as $k = \frac{2\pi}{\lambda}$. What are dimensions of k ?(where λ is wavelength of light).
(A) $\mathrm{[M^OL^{-1}\ T^O]}$

(B) $\left[\mathrm{M}^{1}\ \mathrm{L}^{1}\ \mathrm{T}^{\mathrm{O}}\right]$
(C) $\left[\mathrm{ML}^{\mathrm{O}}\mathrm{T}^{1}\right]$
(D) $\left[\mathrm{ML}^{-2}\ \mathrm{T}\right]$

Answer Key

Q1	(C)
Q2	(C)
Q3	(D)
Q4	(B)
Q5	(B)
Q6	(B)
Q7	(D)
Q8	(B)
Q9	(A)