Yakeen NEET 2.0 2026

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DPP: 4

Units and Measurements

Q1 In a given system of units, 1 unit of mass $= 2\ \text{kg}$, 1 unit of length $= 5\ \text{m}$ and 1 unit of time $= 5\text{sec}$. Then in this system, $1\ \text{N}$ represents
(A) $5/2$ units of force
(B) $2/5$ units of force
(C) 2 units of force
(D) 1/2 units of force

Q2 Imagine a system of units in which the unit of mass is $10\ \text{kg}$, length is $1\ \text{km}$ and time is 1 minute. Then $1\ \text{J}$ in this system is equal to _____units of work:
(A) 360
(B) 3.6
(C) 3.6×10^5
(D) 36×10^{-5}

Q3 In a new unit system, 1 unit of time is equal to $10 second$, 1 unit of mass is $5\ \text{kg}$ and $1 unit$ of length is $20\ \text{m}$. In the new system of units, $1 unit$ of energy is equal to:
(A) $20 Joule$
(B) $\frac{1}{20}$ Joule
(C) $4 Joule$
(D) $16 Joule$

Q4 Match the following:

	Physical quantity		Dimension		Unit
(1)	Gravitational constant 'G'	(P)	$M^1L^1T^{-1}$	(a)	N.m
(2)	Torque	(Q)	$M^{-1}L^3T^{-2}$	(b)	N.s
(3)	Momentum	(R)	$M^1L^{-1}T^{-2}$	(c)	Nm^2/kg^2
(4)	Pressure	(S)	$M^1L^2T^{-2}$	(d)	Pascal

(A) $1-\text{Q}-\text{c}, 2-\text{S}-\text{a}, 3-\text{P}-\text{b}, 4-\text{R}-\text{d}$
(B) $1-\text{Q}-\text{a}, 2-\text{S}-\text{c}, 3-\text{P}-\text{b}, 4-\text{R}-\text{d}$
(C) $1-\text{Q}-\text{c}, 2-\text{S}-\text{a}, 3-\text{P}-\text{d}, 4-\text{R}-\text{b}$
(D) $1-\text{S}-\text{c}, 2-\text{Q}-\text{a}, 3-\text{P}-\text{b}, 4-\text{R}-\text{d}$

Q5 The position x of a particle at time $'t'$ is given by $x = \frac{v_0}{a}(1 - e^{-at})$ where v_0 is a constant and $a > 0$. The dimensions of v_0 and a are:
(A) $[\text{M}^0\ \text{L}\ \text{T}^{-1}]$ and $[\text{T}^{-1}]$
(B) $[\text{M}^0\ \text{L}\ \text{T}^0]$ and $[\text{T}^{-1}]$
(C) $[\text{M}^0\ \text{L}\ \text{T}^{-1}]$ and $[\text{LT}^{-2}]$
(D) $[\text{M}^0\ \text{L}\ \text{T}^{-1}]$ and $[\text{T}]$

Q6 $\alpha = \frac{Fv^2}{\beta^2}\log_e\left(\frac{2\pi\beta}{v^2}\right)$ (where $v =$ velocity, $F =$ force). Find the dimensions of α and β
(A) $\text{M}^0\ \text{L}^2\ \text{T}^{-2}, \text{M}^1\ \text{L}^{-1}\ \text{T}^0$
(B) $\text{M}^1\ \text{L}^1\ \text{T}^{-2}, \text{M}^1\ \text{L}^{-1}\ \text{T}^0$
(C) $\text{M}^1\ \text{L}^{-1}\ \text{T}^0, \text{M}^0\ \text{L}^2\ \text{T}^{-2}$
(D) $\text{M}^1\ \text{L}^{-1}\ \text{T}^0, \text{M}^0\ \text{L}^0\ \text{T}^{-1}$

Q7 In $S = a + bt + ct^2$, S is measured in metres and t in seconds. The unit of c is
(A) None
(B) m
(C) ms^{-1}
(D) ms^{-2}

Q8 The linear momentum p of a particle is given as a function of time t as $p = At^2 + Bt + C$. The

dimensions of constant B are

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

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

(C) $\left[\mathrm{MLT}^{-2}\right]$

(D) $\left[\mathrm{MLT}^{-1}\right]$

Q9 If the dimensions of length are expressed as $G^x c^y\ h^z$, which G, c and h are the universal gravitational constant, speed of light and Planks constant respectively then

(A) $x=\frac{1}{2}, y=\frac{1}{2}$

(B) $x=\frac{1}{2}, z=\frac{1}{2}$

(C) $y=\frac{1}{2}, z=\frac{3}{2}$

(D) $y=\frac{3}{2}, z=\frac{1}{2}$

Answer Key

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

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