

Yakeen NEET 2.0 2026

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Units and Measurements

DPP: 4

Q1 If E = energy, G = gravitational constant, I = Impulse and M = mass, then dimensions of $\frac{GIM^2}{E^2}$ are same as that of

- (A) Time (B) Mass
(C) Length (D) Force

Q2 A physical quantity X is defined as $X = \frac{a^2b^3}{c\sqrt{d}}$, where a, b, c , and d have dimensions of length $[L]$, mass $[M]$, time $[T]$, and current $[I]$, respectively. What are the dimensions of X ?

- (A) $[X] = L^2 M^3 T^{-1} I^{-1/2}$
(B) $[X] = L^2 M^2 T^{-1} I^{-1/2}$
(C) $[X] = L^3 M^3 T^{-1} I^{-1/2}$
(D) $[X] = L^2 M^3 T^{-2} I^{-1/2}$

Q3 A and B are two physical quantities having different dimensions. Then which of the following operation is dimensionally **correct**?

- (A) $A + B$
(B) $\log \frac{A}{B}$
(C) $\frac{A}{B}$
(D) $e^{A/B}$

Q4 Two quantities A and B have different dimensions. Which mathematical operation given below is physically meaningful?

- (A) A/B
(B) $A + B$
(C) $A - B$
(D) None of these

Q5 If energy (E), velocity (V), and force (F) are taken as fundamental physical quantities, then

what is the dimension of mass?

- (A) EV^2 (B) EV^{-2}
(C) FV^{-1} (D) FV^{-2}

Q6 Centripetal force (F) depends on mass of body (m), velocity of body (v) and radius of circular path (r). The dimensional formula of F is:

- (A) $m^1 v^2 r^1$ (B) $m^1 v^1 r^1$
(C) $m^{-1} v^2 r$ (D) $m^{-1} r^1 v^1$

Q7 Planck's constant (h), speed of light in vacuum (c) and Newton's gravitational constant (G) are three fundamental constants. Which of the following combinations of these has the dimension of length?

- (A) $\frac{\sqrt{hG}}{c^{3/2}}$
(B) $\frac{\sqrt{hG}}{c^{5/2}}$
(C) $\sqrt{\frac{hc}{G}}$
(D) $\sqrt{\frac{Gc}{h^{3/2}}}$

Q8 A force defined by $F = \alpha t^2 + \beta t$ acts on a particle at a given time t . The factor which is dimensionless, if α and β are constants, is:

- (A) $\beta t / \alpha$
(B) $\alpha t / \beta$
(C) $\alpha \beta t$
(D) $\alpha \beta / t$

Q9 The method of dimensional analysis can be used to derive which of the following relations?

- (A) $N_0 e^{-\lambda t}$
(B) $A \sin(\omega t + kx)$



- (C) $\frac{1}{2}mv^2 + \frac{1}{2}I\omega^2$
(D) None of the above

Q10 The number of significant figures in 0.06900 is

- (A) 5 (B) 4
(C) 2 (D) 3

Q11 The respective number of significant figures for the numbers 6.320, 6.032 and 0.0006032 are

- (A) 3, 4, 8 (B) 4, 4, 8
(C) 4, 4, 4 (D) 4, 3, 4

Q12 The number of significant figures in the measured value 0.0204 is

- (A) Five (B) Three
(C) Four (D) Two

Q13 What is the number of significant figures in 0.310×10^3 ?

- (A) 2 (B) 3
(C) 4 (D) 6

Q14 The mass of a box measured by a grocer's balance is 2.3 kg. Two gold pieces of masses 20.15 g and 20.17 g are added to the box. The total mass of the box is

- (A) 2.3 kg
(B) 2.34 kg
(C) 2.340 kg
(D) 2.3403 kg

Q15 A cube has a side 1.2×10^{-2} m. Its volume will be recorded as

- (A) $1.728 \times 10^{-6} \text{ m}^3$
(B) $1.72 \times 10^{-6} \text{ m}^3$
(C) $1.7 \times 10^{-6} \text{ m}^3$
(D) $72 \times 10^{-6} \text{ m}^3$



Answer Key

Q1 (A)

Q2 (A)

Q3 (C)

Q4 (A)

Q5 (B)

Q6 (A)

Q7 (A)

Q8 (B)

Q9 (D)

Q10 (B)

Q11 (C)

Q12 (B)

Q13 (B)

Q14 (A)

Q15 (C)



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