ARJUNA (NEET)

Units and Mesurements

DPP-04

1. If unit of length, mass and time each be doubled the unit of work is increased by
(A) 8 times (B) 4 times
(C) 6 times (D) 2 times

2. If a unit of length becomes (1/10)m instead of '1 m' then what will be the numerical value of the volume of a cube of 500 m^3.

3. Centripetal force (F) depends on mass of body (m), velocity of body (v) and radius of circular path (r). Find out the relation among these quantities.
(A) $m^1 v^2 r^{-1}$ (B) $m^1 v^1 r^1$
(C) $m^{-1} v^{-2} r$ (D) $m^{-1} r^1 v^1$

4. If force, acceleration and time are taken as fundamental quantities, then the dimensions of length will be
(A) FT^2 (B) $F^{-1}A^2T^{-1}$
(C) FA^2T (D) AT^2

5. Force acting on a particle is given by $F = (A - x)/Bt$, where x is in metre, and t is in seconds. The dimension of B is
(A) MLT^{-2} (B) $M^{-1}T^{-3}$
(C) $M^{-1}T$ (D) MT^{-1}

6. If the units of length and force are increased four times, then the unit of energy will-
(A) Increase eight times
(B) Increase 16 times
(C) Decrease 16 times
(D) Increase four times

7. The velocity v of a particle at time t is given by $v = \frac{a}{t} + \frac{bt}{t^2 + c}$. The dimensions of a, b, c are respectively
(A) LT^{-1} L, T (B) L, L, T^{-2}
(C) L, LT, T^{-2} (D) L, L, LT^2

8. The dimensional formula of k in $y = \sin(kx)$ is (if x is the distance)
(A) $M^0 L^0 T^{-1}$ (B) $M^{-1} L^{-1} T^0$
(C) $M^0 L^{-1} T^0$ (D) $M^0 L^0 T^0$

9. 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) $\frac{1}{2}mv^2 + \frac{1}{2}Iw^2$
(D) None of the above

10. Force acting on object is proportional to the square of acceleration then find dimension of proportional constant.
(A) $M L^{-1} T^2$ (B) $M^{-1} L^{-1} T^{-2}$
(C) $M L^2 T^{-2}$ (D) $M L^2 T^1$

ANSWERS

1. **(D)**
2. **(4000)**
3. **(A)**
4. **(D)**
5. **(D)**
6. **(B)**
7. **(B)**
8. **(C)**
9. **(D)**
10. **(A)**

Note - If you have any query/issue

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