

NEET PHYSICS

Topic: Basic Mathematics, Unit and Dimensions

- Q.1 The unit of power is-
- (1) kilowatt (2) kilowatt-hour
(3) dyne (4) joule
- Q.2 The unit of energy is-
- (1) J/s (2) watt-day
(3) kilowatt (4) g-cm/s²
- Q.3 In the S.I. system, the unit of temperature is-
- (1) degree centigrade
(2) Kelvin
(3) degree Celsius
(4) degree Fahrenheit
- Q.4 In the S.I. system the unit of energy is-
- (1) erg (2) calorie
(3) joule (4) electron volt
- Q.5 Unit of pressure in S.I. system is-
- (1) atmosphere
(2) dynes per square cm
(3) pascal
(4) bar
- Q.6 Which of the following is not a unit for energy ?
- (1) Kilo watt hour (2) Newton- meter
(3) (weber) (ampere) (4) None of these

Q.7 In SI unit the angular acceleration has unit of-

- (1) Nmkg^{-1} (2) ms^{-2}
(3) rad.s^{-2} (4) Nkg^{-1}

Q.8 Surface tension has unit of-

- (1) Joule.m^2 (2) Joule.m^{-2}
(3) Joule.m (4) Joule.m^3

Q.9 The M.K.S. units of coefficient of viscosity is-

- (1) $\text{kg m}^{-1}\text{s}^{-1}$ (2) kg m s^{-2}
(3) $\text{kg m}^2 \text{s}^{-1}$ (4) $\text{kg}^{-1} \text{m}^{-1} \text{s}^2$

Q.10 A dimensionless quantity-

- (1) never has a unit (2) always has a unit
(3) may have a unit (4) does not exist

Q.11 $[\text{M L T}^{-1}]$ are the dimensions of-

- (1) power (2) momentum
(3) force (4) couple

Q.12 The dimensions of impulse are equal to that of-

- (1) force
(2) angular momentum
(3) pressure
(4) linear momentum

Q.13 Which of the following pairs have same dimensions –

- (a) Torque and work
(b) Angular momentum and work
(c) Energy and moment of inertia
(d) Light year and wavelengths
- (1) a and b (2) a and d
(3) b and c (4) a , b, and d

Q.14 Which of the following does not have dimensions of length ?

- (1) Fermi (2) Micro
(3) Angstrom (4) Radian

Q.15 The dimensional formula for angular momentum is –

- (1) ML^2T^{-2} (2) ML^2T^{-1}
(3) MLT^{-1} (4) $M^0L^2T^{-2}$

Q.16 Which of the following statement is wrong ?

- (1) Unit of K.E. is Newton-metre
(2) Unit of viscosity is poise
(3) Work and energy have same dimensions
(4) Unit of surface tension is Newton metre

Q.17 Which of the following is different from other with a point of view of dimension ?

- (1) Planck's constant
(2) Coefficient of viscosity
(3) Force constant
(4) Poisson's ratio

Q.18 Dimensions of magnetic flux density is -

- (1) $M^1L^0T^{-1}A^{-1}$ (2) $M^1L^0T^{-2}A^{-1}$
(3) $M^1L^1T^{-2}A^{-1}$ (4) $M^1L^0T^{-1}A^{-2}$

Q.19 The dimensions of the quantity $\frac{L}{RCV}$ are -

- (1) $M^0L^0T^1A^1$ (2) $M^0L^0T^{-1}A^{-1}$
(3) $M^0L^0T^0A^1$ (4) $M^0L^0T^0A^{-1}$

Q.20 A and B are two physical quantities having different dimensions. Then which of the following operation is dimensionally correct ?

- (1) $A + B$ (2) $\log \frac{A}{B}$
(3) $\frac{A}{B}$ (4) $e^{A/B}$

Q.21 Vander waal's gas equation is

$\left(P + \frac{a}{V^2} \right) (V - b) = RT$. The dimensions of constant a as given above are –

- (1) $M L^4 T^{-2}$ (2) $M L^5 T^{-2}$
(3) $M L^3 T^{-2}$ (4) $M L^2 T^{-2}$

Q.22 For $10^{(at+3)}$, the dimension of a is-

- (1) $M^0 L^0 T^0$ (2) $M^0 L^0 T^1$
(3) $M^0 L^0 T^{-1}$ (4) None of these

Q.23 The velocity of a moving particle depends upon time t as $v = at + \frac{b}{t+c}$. Then dimensional formula for b is –

- (1) $[M^0 L^0 T^0]$ (2) $[M^0 L^1 T^0]$
(3) $[M^0 L^1 T^{-1}]$ (4) $[M^0 L^1 T^{-2}]$

Q.24 The SI unit of length is the meter. Suppose we adopt a new unit of length which equals to x meters. The area $1m^2$ expressed in terms of the new unit has a magnitude-

- (1) x (2) x^2
(3) $\frac{1}{x}$ (4) $\frac{1}{x^2}$

- Q.25 The units nanometre, fermi, angstrom and attometre, arranged in decreasing order will read as-
- (1) angstrom, nanometre, fermi, attometre
 - (2) fermi, attometre, angstrom, nanometre
 - (3) nanometre, angstrom, fermi, attometre
 - (4) attometre, angstrom, fermi, nanometre
- Q.26 Which of the following pairs of physical quantities has different dimensions ?
- (1) stress, pressure
 - (2) Young's modulus, energy density
 - (3) density, relative density
 - (4) energy, torque
- Q.27 If the unit of length is micrometre and the unit of time is microsecond, the unit of velocity will be-
- (1) 100 m/s
 - (2) 10 m/s
 - (3) micrometre/s
 - (4) m/s
- Q.28 A wave is represented by-
- $$y = a \sin (At - Bx + C)$$
- where A, B, C are constants. The Dimensions of A, B, C are
- (1) T^{-1} , L, $M^0L^0T^0$
 - (2) T^{-1} , L^{-1} , $M^0L^0T^0$
 - (3) T, L, M
 - (4) T^{-1} , L^{-1} , M^{-1}
- Q.29 Which of the following is a dimensional constant ?
- (1) Refractive index
 - (2) Dielectric constant
 - (3) Relative density
 - (4) Gravitational constant
- Q.30 Two quantities whose dimensions are not same, cannot be-
- (1) multiplied with each other
 - (2) divided
 - (3) added or subtracted in the same expression
 - (4) added together

ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10
Ans.	1	2	2	3	3	4	3	2	1	3
Que.	11	12	13	14	15	16	17	18	19	20
Ans.	2	4	1	4	2	4	4	2	4	3
Que.	21	22	23	24	25	26	27	28	29	30
Ans.	2	3	2	4	3	3	4	2	4	3

