UNITS

Question 1.
Physical quantities are
(a) quantities such as degrees, radians and steradians
(b) quantities such as length, mass, time, electric current, thermodynamic temperature, amount of substance, and luminous intensity
(c) quantities such as pounds, dollars and rupees
(d) quantities such as kilos, pounds and gallons

Question 2.
Which of the following pairs has the same dimensions?
(a) specific heat and latent heat
(b) lmpulse and momentum
(c) surface tension and force
(d) moment of lnertia and torque

Question 3.
The dimensions of kinetic energy is
(a) [M 2L2T]
(b) [ML 2T]
(c) [ML 2T-2]
(d) [ML 2T-1]

Question 4.
A force F is given by $F = at + bt^2$, where t is time. What are the dimensions of a and b?
(a) MLT-1 and MLT0
(b) MLT-3 and ML2T4
(c) MLT-4 and MLT1
(d) MLT-3 and MLT-4

Question 5.
The atmospheric pressure is 106 dyne/cm^2. What is its value in SI unit?
(a) 105 newton/m^2
(b) 106 newton/m^2
(c) 104 newton/m^2
(d) 103 newton/m^2

Question 6.
In a system of units if force (F), acceleration (A) and time (T) are taken as fundamentals units then the dimensional formula of energy is
(a) FA2T
(b) FAT2
(c) FA2T
(d) FAT

Question 7.
If force (F), work (W) and velocity (v) are taken as fundamental quantities. What is the dimensional formula of time (T)?
(a) [WFv]
(b) [WFv-1]
(c) [W-1F -1v]
(d) [WF-1v -1]

Question 8.
The dimensions of kinetic energy is same as that of
(a) force
(b) pressure
(c) work
(d) momentum

Question 9.
Which of the following groups have different dimensions?
(a) Potential difference, EMF, voltage
(b) Pressure, stress, Youngs modulus
(c) Heat, energy, work done
(d) Dipole moment, electric flux, electric field

Question 10.
ML-1T -2 is the dimensional formula of
(a) magnetic induction
(b) self-inductance
(c) electric potential
(d) electric field

Question 11.
What is the dimensional formula of magnetic field?
(a) MT-2A-1
(b) MT-1A-2
(c) M-1L-2TA-1
(d) M-1LTA-2

Question 12.
Electron volt is a unit of
(a) charge
(b) potential difference
(c) energy
(d) magnetic force

Question 13.
The volume of a cube in m^3 is equal to the surface area of the cube in m^2. The volume of the cube is
(a) 64 m^3
(b) 216 m^3
(c) 512 m^3
(d) 196 m^3

Question 14.
In SI system the fundamental units are
(a) meter, kilogram, second, ampere, Kelvin, mole and candela
(b) meter, kilogram, second, coulomb, Kelvin, mole and candela
(c) meter, Newton, second, ampere, Kelvin, mole and candela
(d) meter, kilogram, second, ampere, Kelvin, mole and lux

Question 15.
Which one of the following represents the correct dimensions of the coefficient of viscosity?
(a) [ML-1T-2]
(b) [MLT-1]
(c) [ML-1T-1]
(d) [ML-2T-2]

Question 16.
A particle starting from the origin (0, 0) moves in a straight line in the (x, y) plane. Its coordinates at a later time are the path of the particle makes with the x-axis an angle of
(a) 300
(b) 450
(c) 600
(d) 0

Question 17.
Resolution is
(a) a measure of the bias in the instrument
(b) None of these
(c) the smallest amount of input signal change that the instrument can detect reliably
(d) a measure of the systematic errors

Question 18.
Absolute error of the measurement is
(a) the difference between the individual measurement and the true value of the quantity cubed.
(b) the difference between the individual measurement and the true value of the quantity squared.
(c) the difference between two individual measurements and their mean
(d) the difference between the individual measurement and the true value of the quantity

Question 19.
Which of the following units denotes the dimensions [ML2/Q2], where Q represents the electric charge?

(a) Wb/m^2
(b) Henry(H)
(c) H/m^2
(d) Weber(Wb)

Question 20.
Light year is a unit of
(a) time
(b) distance
(c) sunlight intensity
(d) mass

Answers key

1.(b)	2.(b)	3.(c)	4.(d)	5.(a)	6.(b)	7.(d)	8.(c)	9.(d)	10.(a)
11.(a)	12.(c)	13.(b)	14.(b)	15.(c)	16.(c)	17.(d)	18.(a)	19.(b)	20.(b)