

Subject :: Physics

Q. No. 1 0011001	Two quantities A and B have different dimensions. Which mathematical operation given below is physically meaningful?
Option A	A + B
Option B	A - B
Option C	$A e^{AB}$
Option D	A/B
Correct Option	D

Q. No. 2 0011002	A wire has a mass (0.3 ± 0.003) gm , radius (0.5 ± 0.005) mm and length (0.6 ± 0.006) cm. The maximum percentage error in the measurement of density is
Option A	7%
Option B	8%
Option C	3%
Option D	4%
Correct Option	D

Q. No. 3 0011003	A body is falling freely starting from rest. Let S_1 , S_2 , S_3 be the distance traversed during successive equal intervals of time then the ratio $S_1 : S_2 : S_3$ is
Option A	1:2:3
Option B	2:3:4
Option C	1:3:5
Option D	1:4:9
Correct Option	C

Q. No. 4 0011004	If a body loses half of its velocity on penetrating 6 cm in a wooden block, then how much will it penetrate more before coming to rest ?
Option A	1 cm
Option B	2 cm
Option C	4 cm
Option D	6 cm
Correct Option	B

Q. No. 5 0011005	In case of projectile motion, What is the angle between the instantaneous velocity and acceleration at the highest point?
Option A	180^0
Option B	60^0
Option C	90^0
Option D	0^0
Correct	C

Option	
Q. No. 6 0011006	The physical quantity, which is equal to rate of change of linear momentum, is
Option A	Force
Option B	Acceleration
Option C	Work
Option D	Impulse
Correct Option	A
Q. No. 7 0011007	A body is acted upon by a constant force, then it will have a uniform
Option A	Speed
Option B	Velocity
Option C	Linear momentum
Option D	Acceleration
Correct Option	D
Q. No. 8 0011008	Two springs A and B ($K_A = 2 K_B$) are stretched by applying forces of equal magnitude at the four ends. If the energy stored in spring B is 2E, that of A is
Option A	E/4
Option B	E/2
Option C	E
Option D	2E
Correct Option	C
Q. No. 9 0011009	Unit of Power is
Option A	Kilowatt hour
Option B	Watt per hour
Option C	Watt
Option D	Erg
Correct Option	C
Q. No. 10 0011010	A mass 'm' is moving with a constant velocity along a line parallel to the Y - axis, away from origin. Its angular momentum with respect to the origin
Option A	is zero.
Option B	remains constant.
Option C	goes on increasing.
Option D	goes on decreasing.
Correct Option	B
Q. No. 11 0011011	Two identical particles move towards each other with the velocity 2V and V respectively. The velocity of the centre of mass of the system is
Option A	0.5 V
Option B	1.5 V

Option C	3 V
Option D	Zero
Correct Option	A

Q. No. 12 0011012	In a perfectly elastic collision, Kinetic energy
Option A	increases
Option B	decreases
Option C	remains constant
Option D	remains zero always
Correct Option	C

Q. No. 13 0011013	Acceleration due to gravity of earth (g) is maximum at
Option A	the surface of earth
Option B	below the surface of earth
Option C	centre of earth
Option D	above the surface of earth
Correct Option	A

Q. No. 14 0011014	Two satellites of masses M and 4M are orbiting a planet in a circular orbit of radius R, their time periods of revolution will be in the ratio of
Option A	4 : 1
Option B	2 : 1
Option C	1 : 1
Option D	1 : 2
Correct Option	C

Q. No. 15 0011015	The Young's modulus of the material of the wire of length L and radius r is Y N/m² .If the length of wire is reduced to L/4 and radius r/4, the Young's modulus will be
Option A	Y
Option B	16 Y
Option C	Y/16
Option D	4 Y
Correct Option	A

Q. No. 16 0011016	The specific heat of a gas in an isothermal process is
Option A	Infinite
Option B	Zero
Option C	Negative
Option D	One
Correct Option	A

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Q. No. 17 0011017	The rain drops are spherical due to
Option A	Viscosity
Option B	Thrust
Option C	Surface tension
Option D	Lubrication
Correct Option	C

Q. No. 18 0011018	The ratio of two specific heats (C_p/C_v) of a monoatomic gas at room temperature is
Option A	1.66
Option B	1.33
Option C	1.40
Option D	1.52
Correct Option	A

Q. No. 19 0011019	A heat engine works on a Carnot cycle with a heat sink at a temperature of 27°C. The efficiency of the heat engine is 25%, the temperature of the heat source is
Option A	400°C
Option B	400 K
Option C	108°C
Option D	108 K
Correct Option	B

Q. No. 20 0011020	In the kinetic theory of gases, It is assumed that
Option A	There is a force of repulsion between the molecules.
Option B	The collisions are elastic.
Option C	All molecules move in the same direction.
Option D	Molecules do not strike against the walls of container.
Correct Option	B

Q. No. 21 0011021	At a certain temperature, the ratio of the kinetic energy of a H_2 molecules to a O_2 molecule is
Option A	1:1
Option B	1:4
Option C	4:1
Option D	16:1
Correct Option	A

Q. No. 22 0011022	The kinetic energy of a particle in S.H.M. is
Option A	always zero.
Option B	always constant.

Option C	maximum at mean position.
Option D	maximum at extreme position.
Correct Option	C

Q. No. 23 0011023	The mean free path of collision of gas molecules varies with number density of the molecules as
Option A	n^{-4}
Option B	n^{-3}
Option C	n^{-2}
Option D	n^{-1}
Correct Option	D

Q. No. 24 0011024	If the length of simple pendulum is doubled, What will be its new time period in terms of original time period T ?
Option A	0.7 T
Option B	1.414 T
Option C	0.5 T
Option D	2 T
Correct Option	B

Q. No. 25 0011025	Two sound waves are represented by $Y = a \sin(\omega t - kx)$ and $Y = a \cos(\omega t - kx)$. The phase difference between the two waves is
Option A	π
Option B	$\pi/2$
Option C	$\pi/3$
Option D	0
Correct Option	B

Q. No. 26 0011026	When a test charge is brought in form of infinity along the perpendicular bisector of the dipole, the work done is
Option A	Positive
Option B	Zero
Option C	Negative
Option D	Infinity
Correct Option	B

Q. No. 27 0011027	Electric field intensity at a point varies as $1/r^2$ for
Option A	a point charge.
Option B	an electric dipole.
Option C	a plane infinite sheet of charge.
Option D	a line charge.
Correct Option	A

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Q. No. 28 0011028	When the distance between two equal charges is decreased to half and their magnitude of charge also decreased to half, the force between them
Option A	remains unchanged
Option B	reduced to half
Option C	becomes double
Option D	becomes 16 times.
Correct Option	A

Q. No. 29 0011029	which statement influences the capacity of a capacitor?
Option A	area of the plates, thickness of the plates and the rate of charges
Option B	area of the plates, dielectric between the plates and the rate of charges
Option C	distance between the plates, dielectric between the plates and thickness of the plates
Option D	distance between the plates, area of the plates and dielectric between the plates.
Correct Option	D

Q. No. 30 0011030	Electrical conductivity is the reciprocal of
Option A	Conductance
Option B	Resistivity
Option C	Permittivity
Option D	Resistance
Correct Option	B

Q. No. 31 0011031	If the number of turns of a solenoid is doubled, what will happen to its coefficient of self inductance?
Option A	reduced to half
Option B	becomes 2 times
Option C	becomes 4 times
Option D	becomes 16 times.
Correct Option	C

Q. No. 32 0011032	A galvanometer of 100Ω resistance gives full scale deflection with $0.01A$ current. How much resistance should be connected to convert it into a voltmeter of range (0 - 10V) ?
Option A	1000Ω in parallel.
Option B	1000Ω in series.
Option C	900Ω in parallel.
Option D	900Ω in series.
Correct Option	D

Q. No. 33 0011033	Magnetic susceptibility of a perfect diamagnetic substance is
Option A	0
Option B	1
Option C	∞

Option D	-1
Correct Option	D

Q. No. 34 0011034	A power transmission line feeds input power at 2300 V to a step down transformer with its primary windings having 2000 turns. What should be the number of turns in the secondary in order to get output of 230 V?
Option A	400
Option B	200
Option C	100
Option D	1000
Correct Option	B

Q. No. 35 0011035	The resonant frequency of a series LCR circuit is f. If the resistance is made 4 times the initial value, then the resonant frequency will be
Option A	$f/2$
Option B	f
Option C	$2f$
Option D	$f/4$
Correct Option	B

Q. No. 36 0011036	The energy stored in an inductance is 1 joule when a current of 0.1 Ampere is established in it. The self inductance of the coil is -
Option A	50 H
Option B	200 H
Option C	25 H
Option D	2.59 H
Correct Option	B

Q. No. 37 0011037	Dip is the angle which the total intensity of earth's magnetic field at a place makes with
Option A	vertical
Option B	horizontal
Option C	magnetic equator
Option D	geographic equator
Correct Option	B

Q. No. 38 0011038	In a plane electromagnetic wave propagating in space has an electric field of amplitude 6×10^3 V/m . What is the amplitude of oscillating magnetic field?
Option A	3×10^8 T
Option B	2×10^{-5} T
Option C	18×10^{11} T
Option D	15×10^{-6} T
Correct Option	B

Q. No. 39	Young's double slit experiment is shifted from air to water. It can be
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0011039	predicted that the fringe pattern will
Option A	disappear
Option B	remain unchanged
Option C	shrink
Option D	be enlarged
Correct Option	C

Q. No. 40 0011040	Let the two interfering beams have amplitudes in ratio 1:2. The intensity ratio(Maxima to minima) in the interference pattern would be
Option A	1:9
Option B	4:1
Option C	9:1
Option D	1:4
Correct Option	C

Q. No. 41 0011041	Quantity which does not change during refraction is
Option A	direction of light
Option B	speed of light
Option C	frequency of light
Option D	wavelength of light
Correct Option	C

Q. No. 42 0011042	If the critical angle for total internal reflection from a medium to vacuum is 30°. Then velocity of light in the medium is
Option A	1.5×10^8 m/sec
Option B	3×10^8 m/sec
Option C	0.75×10^8 m/sec
Option D	2.4×10^8 m/sec
Correct Option	A

Q. No. 43 0011043	The ratio of the energy of a photon with $\lambda = 400$ nm to that of $\lambda = 800$ nm is
Option A	2
Option B	4
Option C	1/2
Option D	1/4
Correct Option	A

Q. No. 44 0011044	If the kinetic energy of a free electron is made 4 times, its de- Broglie wave length changes by a factor
Option A	4
Option B	2
Option C	1/4
Option D	1/2

Correct Option	D
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Q. No. 45 0011045	Minimum wave length of Lyman series of hydrogen atom is (R= Rydberg constant)
Option A	R
Option B	1/R
Option C	2R
Option D	1/2R
Correct Option	B

Q. No. 46 0011046	The initial nucleus of a radioactive series is ${}_{92}\text{U}^{239}$ and the final nucleus is ${}_{82}\text{Pb}^{207}$. When uranium decays to lead how many α and β particles are produced?
Option A	$\alpha = 6$ and $\beta = 8$
Option B	$\alpha = 8$ and $\beta = 6$
Option C	$\alpha = 4$ and $\beta = 3$
Option D	$\alpha = 3$ and $\beta = 4$
Correct Option	B

Q. No. 47 0011047	A radioactive substance disintegrates to 1/64 of its initial value in 1 minute. The half life of this substance is
Option A	1/10 minute
Option B	1/6 minute
Option C	5/6 minute
Option D	1/4 minute
Correct Option	B

Q. No. 48 0011048	The current gain α of a transistor is 0.98. Current gain β is
Option A	50
Option B	49
Option C	98
Option D	100
Correct Option	B

Q. No. 49 0011049	Resistance offered by a reverse biased ideal PN junction diode is
Option A	Zero
Option B	Low
Option C	Medium
Option D	Infinity
Correct Option	D

Q. No. 50 0011050	In the depletion region of an unbiased p-n junction diode, there are
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Option A	Holes
Option B	Electrons
Option C	Mobile ions
Option D	Immobile ions
Correct Option	D

