

Examrace

Competitive Exams Physics Objective Questions Part 6

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Q-1. Magnetic field is measured in

- (a) Weber
- (b) Hennyry
- (c) Weber (metre)²
- (d) Weber / (metre)²

Q-2. The dimensions of Plank's constant are

- (a) $[ML^2 T^1]$
- (b) $[ML^3 T^1]$
- (c) $[ML^{-2} T^1]$
- (d) $[M^o L^{-1} T^3]$

Q-3. The speed of boat is 5 km/hr in still water. It crosses a river of width 1 km along the shortest possible path in 15 minutes. Then velocity of river is

- (a) 4 km/hr
- (b) 3 km/hr
- (c) 2 km/hr
- (d) 1 km/hr

Q-4. A bullet is dropped from the same height when another bullet is fired horizontally. They will hit the ground

- (a) Simultaneously
- (b) One after the other
- (c) Depends on the observer
- (d) Depends up on mass of bullet

Q-5. The displacement of a particle moving in a straight line depends on time (t) as: $x = \alpha t^3 + \beta t^2 + \gamma t + \delta$.

The ratio of its initial acceleration to its initial velocity depends

- (a) Only on α
- (b) Only on α and β
- (c) Only on β and γ
- (d) Only on α and γ

Q-6. If a cyclist moving with a speed of 4.9 m/s on a level road can take a sharp circular turn of radius 4 m, then coefficient of friction between the cycle tires and road is

- (a) 0.41
- (b) 0.51
- (c) 0.61
- (d) 0.71

Q-7. A body of mass 5 kg is moving in a circle of radius 1 m with an angular velocity of 2 radian/sec. The centripetal force acting on the body is

- (a) 10 N
- (b) 20 N
- (c) 30 N
- (d) 40 N

Q-8. A bullet of mass 25 g moving with a velocity of 200 m/s is stopped within 5 cm of the target. The average resistance offered by the target is

- (a) 10 KN
- (b) 20 KN
- (c) 30 KN
- (d) 40 KN

Answer

Q-9. A machine delivering power moves a body along a straight line. The distance moved by the body in time is proportional to

- (a) t
- (b) \sqrt{t}
- (c) $t^{3/2}$
- (d) $t^{3/4}$

Q-10. If the radius of earth is reduced by 1 % without changing the mass, then change in the acceleration due to gravity will be

- (a) 1 % decrease
- (b) 1 % increase
- (c) 2 % increase
- (d) 2 % decrease

Q-11. If the spinning speed of earth is increased, then weight of the body at the equator

- (a) Increases
- (b) Decreases
- (c) doubles
- (d) Does not change

Q-12. The ratio of energy required to raise a satellite to a height 'h' above the earth's surface to that required to put it into the orbit is

- (a) $h : R$
- (b) $R : h$
- (c) $2h : R$
- (d) $h : 2R$

Q-13. A circular disc is rotating with angular velocity ω . If a man standing at the edge of the disc walks towards its centre, then angular velocity of the disc will

- (a) Decrease
- (b) Increase
- (c) Be halved
- (d) Not change

Q-14. For a gas, if the ratio of specific heats at constant pressure and volume is γ , then the value of degree of freedom is

- (a) $\frac{2}{\gamma} - 1$
- (b) $\frac{1}{2}(\gamma - 1)$
- (c) $\gamma - 1/\gamma + 1$
- (d) $\gamma + 1/\gamma - 1$

Q-15. A life is ascending with acceleration equal to $g/3$. What will be the time-period of a simple pendulum suspended from its time-period in stationary life is T ?

(a) $T/2$

(b) $\left(\frac{\sqrt{3}}{2}\right)T$

(c) $(\sqrt{3}/4)T$

(d) $\frac{T}{4}$

Q-16. If the equation of a sound wave is given as: $y = 0.0015 \sin (62 \times 316t)$, then wavelength of this wave is

(a) 0.4 unit

(b) 0.3 unit

(c) 0.2 unit

(d) 0.1 unit

Q-17. A simple pendulum of length 'l' has a maximum angular displacement θ . The maximum kinetic energy of the bob of mass m is.

(a) Mgl

(b) $0.5 mgl$

(c) $Mgl \sin \theta$

(d) $Mgl (1 - \cos \theta)$

Q-18. A standing wave is represented by: $y = a \sin (100 t) \cdot \cos (0.01 x)$; where t in seconds and x in meters. The velocity of wave is

(a) 10^4 m/s

(b) 1 m/s

(c) 10^{-4} m/s

(d) $10^{-2} \frac{\text{m}}{\text{s}}$

Q-19. The amplitude of the vibrating particle due to superposition of two simple harmonic motion of $y_1 = \sin \left(\omega t + \frac{\pi}{3} \right)$ and $y_2 = \sin (\omega t)$ is

(a) 1

(b) $\sqrt{2}$

(c) $\sqrt{3}$

(d) 2

Q-20. In a sinusoidal wave, the time required for a particular point to move from maximum displacement is 0.17 sec. The frequency of the wave is

(a) 0.36 Hz

(b) 0.73 Hz

(c) 1.47 Hz

(d) 2.94 Hz

Q-21. When a current flows in a wire. There exists an electric field in the direction of

(a) Flow of current

(b) Opposite to the flow of current

(c) Perpendicular to the flow of current

(d) At an angle of 45° to the flow of current

Q-22. Two identical mercury drops, each of radius r are charged to the same potential V . if the mercury drop coalesce to form a big drop of radius R , then potential of the combined drop will be

(a) $(b)^{\frac{3}{2}}$

(b) $(b)^{\frac{2}{3}}$

(c) $(c)^{\frac{2}{3}}$

(d) $(c)^{\frac{1}{2}}$

Q-23. The energy stored in a capacitor is actually stored

(a) Between the plates

(b) On the positive plate

(c) On the negative plate

(d) On the outer surface of the plates

Q-24. In the given figure, the capacitors C_1, C_3, C_4, C_5 have a capacitance of $4 \mu F$ each If the capacitor C_2 has a capacitance between A and B is

(a) $2 \mu F$

(b) $4 \mu F$

(c) $6\mu F$

(d) $2\mu F$

Q-25. A 100 W, 200 V bulb is connected to a 160 volts supply. The actual power consumption would be

(a) $64W$

(b) $80W$

(c) $100W$

(d) $125W$

Q-26. To convert a galvanometer in a voltmeter. We must connect a

(a) Low resistance in series

(b) High resistance in series

(c) Low resistance in parallel

(d) High resistance in Parallel

Q-27. A galvanometer of $100\ \Omega$ resistance gives full scale deflection with 0.01 A current. How much resistance should be connect to convert into an ammeter of range 10 A?

(a) $0.2\ \Omega$ in series(b) $0.2\ \Omega$ in Parallel(c) $0.1\ \Omega$ in series(d) $0.1\ \Omega$ in Parallel

Q-28 The potential difference between two electrodes of a galvanic cell, in an open circuit, is known as

(a) Current

(b) Impedance

(c) Potential difference

(d) Electromotive force

Q-29. The magnetic field B_o due to a current carrying circular loop of radius 12 cm at its centre is $0.50 \times 10^{-4}\ T$, The magnetic field due to this loop at a point on the ax is at a distance of 5 cm from the centre is

(a) $3.5 \times 10^{-9}\ T$

(b) $5.3 \times 10^{-9}\ T$

(c) $9.3 \times 10^{-5} T$

(d) $3.9 \times 10^{-5} T$

Q-30. An e. m. f. of 15 volt is applied in a circuit containing 5H inductance and 10 Ω resistance. The ration of currents at $t = \infty$ and at $t = 1$ sec is

(a) e^{-1}

(b) $1 - e$

(c) $\frac{e^{\frac{1}{2}}}{e^{\frac{1}{2}}} - 1$

(d) $\frac{e^2}{e^2} - 1$

Q-31. Two magnets of magnetic moment M and 2M are placed in a vibration magnetometer, with identical poles in the same direction. The time-period of vibration of the combination is T_1 . if the same magnets are placed with opposite poles together and vibrate with time period

T_2 , then .

(a) $T_2 = T_1$

(b) $T_2 > T_1$

(c) $T_2 < T_1$

(d) T_2 is infinite

Q-32. Which of the following waves have the maximum wavelength?

(a) X-rays

(b) radio waves

(c) UV rays

(d) IR rays

Q-33. At what angle, a ray of light will be incident on face of an equilateral prism, so that the emergent ray may graze the second surface of the ($\mu = 1.5$)

(a) 18°

(b) 28°

(c) 32°

(d) 38°

Q-34. A paper, with two marks having separation d , is held normal to the line of sight of an observer at distance of 50 cm. The diameter of the eye-lens of the observer is 2 mm. Which of the following is the least value of d , so that the marks can be seen as separate? (mean wavelength of visible light may be taken 5000 Å)

- (a) 0.125 cm
- (b) 1.225 cm
- (c) 1.525 cm
- (d) 2.125 cm

Q-35. How many images will be formed if two mirrors are fitted on adjacent wall and one mirror on roof?

- (a) 2
- (b) 5
- (c) 7
- (d) 10

Q-36. An optician prescribes spectacles to a patient with a combination of a convex lens of focal length 40 cm and concave lens 25 cm. The power of spectacles is

- (a) $-1.5D$
- (b) $-6.5D$
- (c) $1.5D$
- (d) $6.5D$

Q-37. The velocity of an electron in the inner-most orbit of an atom is

- (a) Zero
- (b) Mean
- (c) Lowest
- (d) Highest

Q-38. The hydrogen atom can give spectral lines in the Lyman, Balmer and Paschal series. Which of the following statement is correct?

- (a) Paschal series is in visible region
- (b) Balmer series is in visible region
- (c) Lyman series is in infra-red region
- (d) Balmer series is in ultra violet-region

Q-39. A sample of a radioactive substance contains 2828 atoms. If its half-life is 2 days, how many atoms will be left intact in the sample after one day?

- (a) 1414
- (b) 707
- (c) 2000
- (d) 1000

Q-40. In a nuclear reactor, the fast moving neutrons are showered down by passing them through

- (a) oil
- (b) Vacuum
- (c) Heavy water
- (d) Kerosene

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