

- In motion of satellites, necessary centripetal force is provided by:
 - Gravitational Force
 - Coulomb's Force
 - Magnetic Force
 - Nuclear Force
- In ripple tank 40 waves pass through a certain point in one second. If the wavelength of the waves is 5cm, then find the speed of wave.

$v = \lambda f$
 $= 40 \times 5 \times 10^{-2}$
 $= 200$
 $= 2$

 - 2.7 m/s
 - 3 m/s
 - 200 m/s
 - 2 m/s
- The product of frequency and time period is equal to:
 - 2
 - 3
 - 0
 - 1
- Trough of a wave acts as:
 - Concave lens
 - Concave mirror
 - Convex lens
 - Convex mirror
- In Doppler effect if listener moves towards a stationary source then:
 - Observed frequency is greater than original frequency
 - Observed frequency is less than original frequency
 - Observed frequency is equal to original frequency
 - Observed frequency is independent of original frequency
- Refrigerator is an example of:
 - First law of thermodynamics
 - Second law of thermodynamics
 - Newton law of motion
 - Entropy

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- In a certain process, 400J of heat energy is supplied to a system and at the same time 150J of work is done by the system. The internal energy of system is _____.
 - 150J
 - 250J
 - 550J
 - 500J
- The rapid escape of air from a burst tyre is an example of:
 - Isothermal
 - Adiabatic
 - Isobaric
 - Isochoric
- The bicycle pump works on the basis of:
 - 1st Law of thermodynamics
 - 2nd Law of thermodynamics
 - Law of conservation of energy
 - Law of entropy
- Two positive charges are placed 2m apart. The electric field at mid point due to these two charges will be ____:
 - Increased to double
 - Reduced to half
 - Remains same (no effect)
 - Cancel each other effect
- Which one of the following is the angle of projection of a projectile if its range is equal to its height?
 - 45°
 - 60°
 - 90°
 - 76°
- The product of force and time is equal to:

$F = \frac{dp}{dt}$ $F \cdot t = \Delta p$

 - Angular momentum
 - Force
 - Change in momentum
 - Velocity

- The rate of change of linear momentum of a body is equal to:
 - Force
 - Momentum
 - Power
 - Acceleration
- A 10 N force moves a body around a circular path of radius 50cm. What is work done in completing one revolution?
 - 5 J
 - Zero
 - 31.42 J
 - 500 J
- 3 kg stone falls from 20m high platform. Find its falling speed at 10m height.

$v = \sqrt{2gh}$
 $= \sqrt{2 \times 9.8 \times 10}$
 $= \sqrt{196}$
 $= 14 \text{ ms}^{-1}$

 - 19 ms⁻¹
 - 14 ms⁻¹
 - 10 ms⁻¹
 - 100 ms⁻¹
- The area under force - displacement graph gives us:
 - Displacement
 - Power
 - Work
 - Acceleration
- Kilowatt-hour is unit of?
 - Electric Energy
 - Power
 - Momentum
 - Torque
- The food we eat in one day has about the same energy as _____ liter of petrol.
 - 0.33 liter of petrol
 - 1 liter of petrol
 - 2 liter of petrol
 - 3 liter of petrol
- The angle subtended by a complete circle is equal to:
 - 2 radian
 - 3 radian
 - 5 radian
 - 6 radian

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- Which of the following is not a longitudinal wave?
 - Sound wave
 - Water wave
 - Light wave
 - Radio wave
- When resistances are connected in series, the equivalent resistance is equal to:
 - Product of the reciprocals of the individual resistances
 - Sum of the individual resistances
 - Product of the individual resistances
 - Sum of the reciprocals of the individual resistances
- Two cells of EMF 1.5V and 2V and a bulb each of resistance 3Ω are connected in series to a 12Ω resistor. The potential difference across each will be:
 - 1.5V
 - 2V
 - 9V
 - 12V
- Four wires of equal length and of resistance 10 Ω each are connected in parallel. The equivalent resistance between two opposite corners of the square is:
 - 2.5 Ω
 - 5 Ω
 - 10 Ω
 - 5/2 Ω
- Constructive interference is written as:
 - $a + b$
 - $a - b$
 - $(2a + 1) \frac{\lambda}{2}$
 - $(2a + \frac{1}{2}) \frac{\lambda}{2}$
- Which of the following can be used in visualizing detailed internal human anatomy?
 - Magnetic resonance imaging (MRI)
 - CT scanning
 - MRI is preferred over computed tomography (CT) because:
 - It involves no x-ray ionizing radiations
 - It is less expensive than CT scanning
 - Both of the above
 - None of the above
 - Nuclear magnetic resonance imaging (NMRI)
- When the elastic limit, the ratio between the applied tensile stress to the extension is called:
 - Young's modulus
 - Shear modulus
 - Bulk modulus
 - Compressibility
- Which of the following is not a long range communication system?
 - Mobile phone
 - Internet
 - Satellite communication
 - Radio communication
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- By increasing area of the plates and decreasing distance between them, the capacitance of capacitor:
 - Increases
 - Decreases
 - Remains unchanged
 - Depending upon temperature
- If we double the separation between two charges then coulomb's force will become?
 - Doubled
 - Half
 - 4-times
 - 1/4th
- The power used in a bulb is 100W. It is connected to 110V power supply. The resistance of electric bulb will be?

$R = \frac{V^2}{P} = \frac{12100}{100} = 121 \Omega$

 - 11 ohm
 - 20 ohm
 - 121 ohm
 - 200 ohm
- Terminal voltage "V_t" of the battery is greater than emf of the battery when:
 - Battery is charging
 - Battery is discharging
 - Battery is connected with R
 - Battery is connected with voltmeter
- The temperature coefficient of semi-conductor is negative because:
 - Resistance increases with increase of temperature
 - Resistance decreases with increase of temperature
 - Resistance decreases with decrease of temperature
 - Resistance remains same with increase of temperature
- If length of the wire is halved and area becomes double times to its original value then resistance will become:

$R = \frac{\rho L}{A}$
 $R' = \frac{\rho \frac{L}{2}}{2A} = \frac{R}{4}$

 - Double
 - Half
 - One fourth
 - One eighth
- The unit of resistivity is:
 - ohm
 - ohm meter
 - ohm / meter
 - meter / ohm
- 1 kilowatt hour =
 - 1.6×10^{18} J
 - 3.6×10^6 J
 - 9.1×10^{11} J
 - 1.67×10^{17} J
- It is a null type resistance measuring instrument:
 - Galvanometer
 - Ohmmeter
 - Potentiometer
 - Wheatstone bridge

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