

Tsi12P

Tenkasi District



Common Quarterly Examination - 2024

21-09-2024

Standard 12

Time Allowed: 3.00 Hours

PHYSICS

Maximum Marks: 70

PART - I

Note: i) Answer all questions.

15×1=15

ii) Choose the most appropriate answer from the given four alternatives and write the option code and the corresponding answer.

- Two identical conducting balls having positive charges q_1 and q_2 are separated by a centre to centre distance 'r'. If they are made to touch each other and then separated to the same distance, the between them will be
 - less then before
 - same as before
 - more then before
 - zero
- A parallel plate capacitor stores a charge 'Q' at a volume 'V' suppose the area of the parallel plate capacitor and the distance between the plates are each doubled then which is the quantity that will change?
 - Capacitance
 - Charge
 - Voltage
 - Energy density
- In Joule's heating law, when 'R' and 'I' are constant. If the heat produced (H) is taken along the y-axis and I^2 along the x-axis, the graph is
 - Straight line
 - Parabolla
 - Circle
 - Elipse
- A metallic wire of length 'l' has resistance of 10Ω . The wire is bent in the form of a semicircle of radius 1m. The resistance between the two ends of the semi-circular wire is
 - $10\pi\Omega$
 - 10Ω
 - $\frac{10}{11}\Omega$
 - $\frac{11}{10}\Omega$
- The temperature co-efficient of resistance of a wire is $0.00125 \text{ per } ^\circ\text{C}$. At 20°C , its resistance is 1Ω . The resistance of the wire will be 2Ω at
 - 800°C
 - 700°C
 - 850°C
 - 820°C
- The vertical component of Earth's magnetic field at a place is equal to the horizontal component. What is the value of angle of dip at this place?
 - 30°
 - 45°
 - 60°
 - 90°
- A circular coil having 'N' turns and radius 'R' carries a current 'Q'. At what distance from the centre of the coil along its axis, the magnetic field is $1/27$ of its value at the centre?
 - $X = 8R$
 - $X = \sqrt{2}R$
 - $X = \sqrt{3}R$
 - $X = \sqrt{8}R$
- In an oscillating LC circuit, the maximum charge on the capacitor is 'Q'. The charge on the capacitor when the energy is stored equally between the electric field and magnetic field is
 - $\frac{Q}{2}$
 - $\frac{Q}{\sqrt{3}}$
 - $\frac{Q}{\sqrt{2}}$
 - Q
- A step down transformer reduces the supply voltage from 220V to 11V and increases the current from 6A to 100A. Then is efficiency is
 - 1.2
 - 0.83
 - 0.12
 - 0.9
- The unit $\frac{\text{joule}}{\text{ampere}^2} (\text{JA}^{-2})$ is equivalent to the unit
 - henry
 - ohm
 - farad
 - ampere
- Which of the following is false for electro magnetic waves?
 - transverse
 - non-mechanical waves
 - longitudinal
 - produced by acclerating charges
- An e.m. is propagating in a medium with a velocity $\vec{V} = V\hat{k}$. The instantaneous oscillating electric field of this e.m. wave is along +y axis, then the direction of oscillating magnetic field of the e.m. wave will be along
 - y direction
 - x direction
 - +z direction
 - z direction
- Which of the following is an electromagnetic wave?
 - α rays
 - β rays
 - positive rays
 - γ rays

