PHYSICS

BOOKS - VGS PUBLICATION-BRILLIANT

MODEL PAPER 3

Section A

1. What is the importance of Oersted's experiment ?

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2. The earth takes 24 hours to rotate once about its axis. How much time does the sun take to shift by 1° when viewed from the earth?

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3. A short bar magnet placed with its axis at 30° with an external field of $800 \times 10^{-4} T$

experiences a torque of 0.016 Nm. What is the magnetic moment of the magnet?

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4. Define magnetic declination.

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5. What is the phenomenon involved in the working of a transformer?

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6. Give two uses of infrared rays.

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7. What is "Photoelectric effect" ?

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8. What are "Cathode rays" ?

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9. What are intrinsic and extrinsic semiconductors ?

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10. Which type of communication is employed in mobile phones?

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Section B

1. Define focal length of a concave mirror. Prove that the radius of curvature of a concave mirror is double its focal length.

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2. Explain Doppler effect in light. Distinguish between red shift and blue shift.

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3. State and explain Coulomb's inverse square law in electricity.

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4. $A900 \times 10^{-12}$ F capacitor is charged by 100 V battery. How much electrostatic energy is stored by the capacitor ?

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5. Describe the ways in which Eddy currents are used to advantage.

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6. How do you converta moving coil galvanometer into an ammeter and a voltmeter ? Explain with diagrams.

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7. Explain the different types of spectral series.

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8. Distinguish between half-wave and full-wave rectifiers.

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Section C

1. Explain the formation of stationary waves in stretched strings and derive harmonic equations.

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2. A stretched wire of length 0.6 m is observed to vibrate with a frequency of 30 Hz in the fundamental mode. Find the velocity of propagation of transverse waves in the string

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3. State the working principle of Potentiometer. Explain with the help of a circuit diagram how the potentiometer is used to determine the internal resistance of the given primary cell.

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4. Explain the principle and working of a nuclear reactor with the help of a labelled diagram.

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