PHYSICS

BOOKS - VGS PUBLICATION-BRILLIANT

MODEL PAPER 4

Section A

1. Distinguish between Ammeter and Voltmeter.

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2. Classify the following materials with regard to magnetism: Manganese, Bismuth, Oxygen, Copper

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3. Asmali angled prism of 4° deviates a ray through 2.48° . Find the Tefractive index of the prism.

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4. Define magnetic declination.

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5. A transformer converts 200 V ac into 2000 V ac, Calculate the number of turns in the secondary, if the primary has 10 turns

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6. What are the applications of microwaves ?

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7. What is Photoelectric effect ?

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8. Write down deBroglie's relation and explain the terms therein.

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9. Draw the circuit symbols for p-n-p and n-p-n transistors.

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10. Define modulation. Why is it necessary ?

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Section B

1. With a neat labelled diagram, explain the formation of image in a simple microscope..

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2. Derive the expression for the intensity at a point where interference of light occurs. Arrive at the conditions for maximum and. zero intensity.

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3. Derive an expression for the intensity of the electric field at a point on the axial line of an electric dipole.

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4. Derive an expression for the capacitance of a parallel plate capacitor.

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5. State and explain Biot-Savart Law.

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6. What are Eddy currents ? Describe any three uses of it.

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7. Describe Rutherford atom model. What are the drawbacks of this model ?

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8. What is rectification ?'Explain the working of a full-wave rectifier.

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Section C

1. Explain the formation of stationary waves in an air column enclosed in open pipe. Derive the equations for the frequencies of the harmonics produced.

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2. A closed organ pipe 70 cm long is sounded. If the velocity of sound is 331 m/s, what is the fundamental frequency of vibration of the air column ?

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3. State Kirchhoff's law for an electrical network. Using these laws deduce the condition for balance in a wheatstone bridge.

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4. Three resistors $2\Omega, 4\Omega$ and 5Ω are combined in parallel. What is the total resistance of the combination ?

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5. Explain the principle and working of a Nuclear reactor with the help of a labelled diagram.

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