PHYSICS

BOOKS - JEEVITH PUBLICATIONS PHYSICS (KANNADA ENGLISH)

SUPER MODEL QUESTION PAPER -5

Part A

1. What is the potential difference between any two points inside a charged spherical

shell?

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2. What is a potentiometer?

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3. State Ampere's circuital law and represent it mathematically.

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4. What is hysteresis ?

5. Mention the expression for self inductance of a solenoid . Give the meaning of the symbols used.

6. Define a wave front .

7. What is radioactivity ?

8. Write one important application of zener diode .

9. Give the circuit symbol of AND-gate.

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10. What is the band width used for video signal transmission ?

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Part B

1. Write an expression for potential at a point on the diople axis of an electric dipole .

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2. State and explain ohm's law

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3. What is a transformer ? Write an expression for turns ratio .

4. State Ampere - Maxwell's law.

5. Draw a diagram showing wave front undergoing reflection .

6. On what factor does the stopping potential depend for a given photoemitter?

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7. Give any two postulates of Bohr's theory of atomic model.

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8. Write an expression for amplitude modulated carrier wave .

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Part C

1. Arrive at gauss's law in electrostatics.

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2. Obtain an expression for the force between two straight parallel conductor carrying current. Hence define ampere.

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3. State and explain Gauss's law in magnetism.

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4. Give the expression for velocity of an electron in the nth orbit. Explain the meanings of the symbols.

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5. Explain the working of a zener diode as a voltage regulator.

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Part D

1. Obtain an expression for the electric field intenstiy at a point on the equatorial line of an electric dipole.

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2. Deduce the condition for balance of a wheatstone's bridge using Kirchoffs rules .

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3. Derive the expression for current when number of cells are connected in parallel .

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4. Derive th lens maker's formula.

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5. A 4 μF capacitor is charged by a 200 V supply. It is then disconnected from the supply, and is connected to another

uncharged 2 μF capacitor. How much electrostatic energy of the first capacitor is lost in the form of heat and electromagnetic radiation?

6. The magnetic fields at two points on the axis of a circular coil at distance of 0.05 m and 0.2 m from the centre are in the ratio $8 : 1$. The radius of the coil is

7. In a Young's double slit experiment, the angular width of a fringe formed on distant screen is $0.1°$. The wave length of light used is $6000\overset{\circ}{A}$. What is the spacing between the slits ?

8. The half life of $_{38}Sr^{90}$ isotope is 28 years. What is the rate of disintegration of 15 mg of this isotope? (Given Avogadro No $= 6.023 \times 10^{23}$)

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