



PHYSICS

BOOKS - OSWAAL PUBLICATION

PHYSICS (KANNADA ENGLISH)

SOLVED PAPER (II PUC MARCH-2016)

Part A

1. State Faraday's law of electromagnetic induction.



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2. Write the expression for displacement current or Maxwell's displacement current.



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3. What is an electric dipole ?



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4. Draw DC bias condition for a PNP transistor.



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5. How can the resolving power of a telescope be increased ?



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6. In the following nuclear reaction, identify the particle X: $n \rightarrow p + e^{-} + X$.



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7. Write the unit of intensity of magnetisation.



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8. How is the power of lens related to its focal length ?



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9. What is a cyclotron?



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10. What is the wavelength range of X-rays ?



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Part B

1. The current in coil of self inductance 5 mH changes from 2.5 A to 2.0 A in 0.01 second. Calculate the value of self induced e.m.f.



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2. Give the expression for magnetic field due to a toroid.



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3. Write the difference between isotope and isobars.



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4. Draw the variation of magnetic field(B) with magnetic intensity(H) when ferromagnetic material is subjected to a cycle of magnetisation.



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5. Mention any three application of polaroids



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6. Write the truth table of NAND gate.



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7. Mention and five properties of electric field lines.



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8. What is 'myopia' ? How to rectify it?



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Part C

1. What is a transformer ? Mention two sources of energy loss in a transformer



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2. What are the characteristics of nuclear forces?



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3. Derive the expression for energy stored in a charged capacitor.



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4. Draw a neat labelled diagram of a transistor amplifier in a CE mode.



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5. Mention the types of transmission media.



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6. Arrive at an expression for drift velocity.



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7. Describe experiments to demonstrate electromagnetic induction.



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8. Write any five properties of ferromagnetic materials



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



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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. Write the expression for electric field at a point on the axis of a short electric dipole.



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4. Write any three experimental observations of photoelectric effect



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5. What is a rectifier ? With suitable circuit describe the action of a full wave rectifier by drawing input and output waveforms.



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6. Derive the expression for effective focal length of two thin lenses kept in contact.



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7. In Young's double slit experiment, fringes of certain width are produced on the screen kept at a certain distance from the slits. When the screen is moved away from the slits by 0.1m, fringe width increases by $6 \times 10^{-5}m$. The separation between the slits is 1 mm. calculate the wavelength of the light used.



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8. When two capacitors are connected in series and connected across 4kV line, the energy stored in the system is 8 J. the same capacitors, if connected in parallel across the same line, the energy stored in 36 J. find the individual capacitances.



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9. calculate the longest wavelength in Balmer series and the series limit . (Given

$$R = 1.097 \times 10^7 m^{-1})$$



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10. Calculate the resonant frequency of Q-factor (Quality factor) of a series L-C-R circuit containing a pure inductor of inductance 4H, capacitor of capacitance $27 \mu F$ and resistor of resistance 8.4Ω .



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11. (a) Three resistors of resistance 2Ω , 3Ω and 4Ω are combined in series. What is the total resistance of the combination ?
- (b) If this combination is connected to a battery of emf 10 V and negligible internal resistance, obtain the potential drop across each resistor.



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