



PHYSICS

BOOKS - OSWAAL PUBLICATION

PHYSICS (KANNADA ENGLISH)

II PUC ANNUAL EXAMINATION 2019

Part A

1. State Coulomb's law .



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2. Define electrical resistivity of a material of a conductor.



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3. Write the expression for force acting on a moving charge in a magnetic field.



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4. What is magnetic susceptibility ?



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5. How the self-inductance of a coil depends on number of turns in the coil ?



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6. For which position of the object magnification of convex lens is -1 (minus one) ?



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7. For which angle of incidence reflected ray is completely polarised ?



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8. Mention any one type of electron emission.



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9. Write the expression for energy of an electron orbit of hydrogen atom.



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10. Write the relation between Half-Life and Mean-Life of radio active element.



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1. Write any two basic properties of charges



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2. Write the expression for drift velocity in terms of current and explain the terms.



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3. Define:

(a) Magnetic declination (b) Magnetic dip.

Mention the S.I. unit of magnetisation.



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4. Write the expression for speed of light in terms of μ_0 and ϵ_0 , explain the terms used.



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5. Write the ray diagram for formation of image in the simple microscope.



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6. What is diffraction of light?



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7. Write the expression for de-Broglie wavelength of electrons in terms of electric potential and explain the terms used.



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8. Distinguish between n-type and p-type semiconductors.



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Part C

1. Derive an expression for electric potential energy of a system of charges in an electric field.



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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. Distinguish between .dia. and .ferro. magnetic materials.



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



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5. Write three experimental observation of photoelectric effect.



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6. Write the three postulates of Bohr's atomic model.



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7. Explain the .Conduction band. .Valence band. and .Energy gap. in semiconductors.



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8. What is modulation ? Write the block diagram of the receiver.



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1. State Gauss's theorem. Obtain an expression for electric field at any point outside a charged spherical hollow conductor (shell).



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2. Obtain an expression for equivalent resistance of two resistors connected in parallel.



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3. Derive the expression for magnetic field at a point on the axis of a circular current loop.



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4. Derive an expression for the impedance of a series LCR, circuit, when an AC voltage is applied to it.



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5. Derive the lens maker's formula.



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6. What is amplification? With a circuit diagram, explain the working of npn transistor as an amplifier in CE configuration.



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7. In a circular parallel plate capacitor radius of each plate is 5 cm and they are separated by a distance of 2mm. Calculate the capacitance and the energy stored. When it is charged by connectig battery of 200 V. (given $\epsilon_0 = 8.854 \times 10^{-12} Fm^{-1}$)



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8. Two resistors are connected in series with 5V battery of negligible internal resistance. A

current of 2 A flows through each resistor. If they are connected in parallel with the same battery a current of $\frac{25}{3}$ A flows through combination. Calculate the value of each resistance.



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9. A conductor of length 3m moving in a uniform magnetic field of strength 100 T. It covers a distance of 70 m in 5 sec. Its plane of motion makes an angle of 30° with direction

of magnetic field. Calculate the emf induced in it.



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10. In a Young's double slit experiment wave length of light used is 5000 \AA and distance between the slits is 2mm , distance from slits is 1m . Find fringe width and also calculate the distance of 7^{th} dark fringe from central bright fringe.



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11. Half life of U-238 undergoing α decay is 4.5×10^9 years. What is the activity of one gram of U-238 sample ?



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