



PHYSICS

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PHYSICS (KANNADA ENGLISH)

QUESTION PAPER 2019

Part A

1. Mention any two types of electron emission.



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



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3. 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 the terms :

(i) Declination

(ii) Inclination or Dip.



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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 p type and n type semiconductors



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Part C

1. Derive an expression for potential energy of electric - di-pole placed in a uniform electric field .



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2. Write the expression for force per unit length between two straight parallel current carrying conductors of infinite length . Hence define SI unit of current 'ampere'.



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3. 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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4. 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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5. In a Young's double slit experiment wave length of light used is 5000 Å and distance

between the slits is 2mm, distance from slits is 1m. Find fringe width and also calculate the distance of 7th dark fringe from central bright fringe.



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6. 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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