PHYSICS

BOOKS - OSWAAL PUBLICATION

PHYSICS (KANNADA ENGLISH)

II PUC MARCH-2017 (SOLVED PAPER)

Part A

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1. State Coulomb's law .

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2. Define mobility. Mention its S.I. Unit

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3. What is the significance of Lenz's law ?

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4. What is meant displacement current?

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5. Write one application of microwave .

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6. How is the power of lens related to its focal

length ?

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7. What are matter waves? Derive an expression for the de Broglie wave length.

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8. What are matter waves? Derive an expression for the de Broglie wave length.

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9. What is the SI unit of activity?

10. What is transducer?

Part B

1. Mention and five properties of electric field lines.

2. Mention any two factors on which the capacitance of a parallel plate capacitor depends.

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3. State and explain ohm's law

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4. Define the terms :

(i) Declination

(ii) Inclination or Dip.

5. State Faraday's law of electromagnetic induction.

6. Name the type of lens used to correct

(i) Myopia

(ii) Hypermietropia

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7. What is a NAND gate?

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8. Draw block diagram of a reciever

Part C

1. Derive a relation between electric field and potential

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

3. How is a galvanometer converted into a voltmeter?

4. Derive the expression for emf induced in a straight conductor moving perpendicular to a uniform magnetic field.

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

6. Mention any three application of polaroids

7. Write any three experimental observations of photoelectric effect

8. Give three defferences between n-type and p-type semiconductors.

Part D

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

2. Give the expression for magnetic field at a point on the axis of a short magnetic dipole.

3. Write any five properites of ferromagnetic materials

4. Derive th lens maker's formula.

5. State radioactive decay law. Derive $N = N_0 e^{-\lambda t}$ for a radioactive element

6. What is a rectifier ? With suitable circuit describe the action of a full wave rectifier by drawing input and output waveforms.
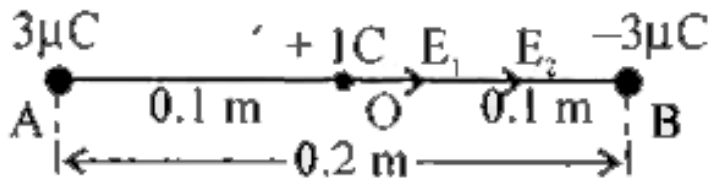
7. Two point charges $q_A = 3\mu C$ and $q_B = -3\mu C$ are located 0.2 m apart in vacuum.

a. What is the electric field at the mid point O of the line AB joining the two charges?

b. If a negative test charge of magnitude $1.5 \times 10^{-9}C$ is placed at this point, what is

the force experienced by the test charge?

$3\mu C$ $+1C$ E_1 E_2 $-3\mu C$

A   0.1 m   O   0.1 m   B

←————— 0.2 m ————→

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8. Which two resistors are connected in series with a cell of emf 2V and negligible internal resistance, a current of (2/5)A flows in the circuit. When the resistances are in parallel, the main current is (5/3)A. Calculate the resistances.

9. A source of alternating emf of 220 V-50 Hz is connected in series with a resitance of 200Ω an inductance of 100 mH and a capacitance of $30\mu F$ does the current lead or lag the voltage and by what angle ?

10. Light of wavelength 6000 $\overset{\circ}{A}$ is used to obtain interference fringe of width 6 mm in a young's double slit experiment. Calculate the wavelength of light required to obtain fringe of width 4 mm if the distance between the screen and slits is reduced to half of its initial value.

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11. The first member of the Balmer series of hydrogen atom has wavelength of 656.3 nm. Calculate the wavelength and frequency of the second member of the same series. Given, $c = 3 \times 10^8 m/s$.

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