PHYSICS

BOOKS - SUNSTAR PHYSICS (KANNADA ENGLISH)

SUPPLEMENTARY EXAM QUESTION PAPER JULY - 2014

Part A I Answer All The Following Questions

1. What is a capacitor ?

Watch Video Solution

2. Define 'drift velocity' of free electrons .

Watch Video Solution

3. What is the nature of force between two parallel wires carrying current in same direction?

Watch Video Solution

4. State Faraday's law of electromagnetic induction.

Watch Video Solution

5. What is Myopia? Name the lens used to correct Myopia.

Watch Video Solution

6. What is isotopes?

Watch Video Solution

7. Mention any one application of LEDs.

Watch Video Solution

8. Give the circuit symbol of AND-gate.

Watch Video Solution

9. Give an expression for range of an antenna interms of its height from ground.

Watch Video Solution

10. What is amplification?

Watch Video Solution

Part B Ii Answer Any Five Of The Following Questions

1. Derive a relation between electric field and potential

Watch Video Solution

2. Give any two practical limitations of Ohm's law.

Watch Video Solution

3. Write any two uses of cyclotron.

Watch Video Solution

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

Watch Video Solution

5. Write any three properties of magnetic field lines.

Watch Video Solution

6. What are eddy currents ? Mention two applications of eddy currents.

Watch Video Solution

7. Give any two uses microwaves.

Watch Video Solution

8. State laws of refraction.

Watch Video Solution

Part C Iii Answer Any Five Of The Following Questions

1. Mention any three properties of an electric charge.

Watch Video Solution

2. Give an expression for force acting on a charge moving in magnetic field and explain

the symbols, when does the force become maximum.

Watch Video Solution

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

Watch Video Solution

4. Derive an expression for resonant frequency of series circuit containing inductor, capacitor and resistor.

Watch Video Solution

5. Write the expression for limit of resolution of a) Microscope and b) Telescope. Write on method increasing the resolving power of microscope.

Watch Video Solution

6. State any three feautures of nuclear force

Watch Video Solution

7. Define half life period of a radioactive sample. Arrive at the relation between half life and decay constnat.

Watch Video Solution

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

Watch Video Solution

Part D Iv Answer Any Two Of The Following Questions

1. Write the expression for electric field intensity at any point outside and inside due to a charged spherical shell.

Watch Video Solution

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

Watch Video Solution

3. Write any four properties of ferromagnetic materials and give an example for it.

Watch Video Solution

Part D V Answer Any Two Of The Following

1. Obtain an expression for the total energy of an electron in the n^{th} orbit of hydrogen atom in terms of absolute constants.

Watch Video Solution

2. Obtain the expression for fringe width in the case of interference of light waves.

Watch Video Solution

3. Explain the working of p-n junction diode as a full wave rectifier with circuit diagram. Give input and output waveforms.

View Text Solution

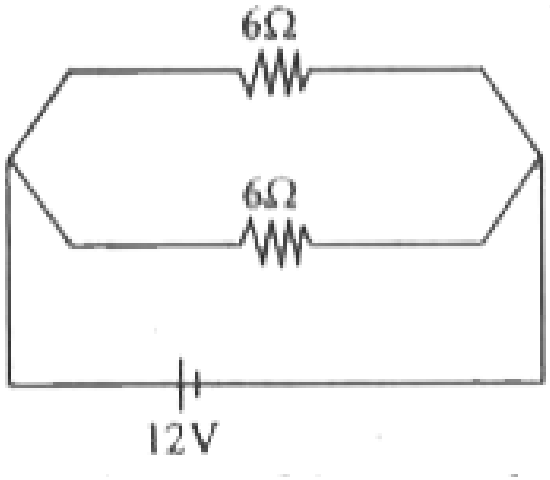
Part D Vi Answer Any Three Of The Following Questions

1. Two charges $3x10^{-8}C$ & $-2x10^{-8}C$ are located 15 cm apart. At what point on the line joining the two charges is the electric

potential zero? Take the potential infinity to be 0.

Watch Video Solution

2. A network of resistors is connected to a 12V battery as shown in fig.



a) Calculate the equivalent resistance of the

network.

b) Obtain current in 12Ω and 6Ω resistors.

Watch Video Solution

3. A pure inductor of 25mH is connnected to a source of 220V and 50 Hz. Find the inductive reactance, rms value of current and peak current in the circuit.

Watch Video Solution

4. A prism of angle 60^0 produces angle of minimum deviation of 40^0. What is its refractive index ? Calcualte the angle of incidence.

Watch Video Solution

5. The work function of caesium metal is 2.14 ev. When light of frequency $6 \times 10^{14} Hz$ is incident on the metal surface, photoemission of electrons occurs. What is the

(a) maximum kinetic energy of the emitted electrons,

(b) Stopping potential, and

(c) maximum speed of the emitted photoelectrons?

Watch Video Solution