



5. A capacitor consists of two metallic discs each of 1 metre in diameter placed parallel to each other at a distance of 4mm. the potential difference between the plates is 10000 volts. Calculate the energy stored by the capacitor.
6. A wire of square shape of each side 10 cm long is carrying current of 2A in the anti-clockwise direction. Calculate the magnetic field at its centre.
7. Using Ampere's law calculates the magnetic field at a point inside a long current carrying solenoid.
8. Distinguish between conduction and displacement current.
9. Write four Maxwell's equation in differential and integral form.

### SECTION-C

10. State and derive Gauss divergence theorem. Give its importance.

**OR**

What made Maxwell suggest the presence of displacement current?

11. Write Maxwell's equations of electromagnetic theory and hence derive general wave equation for electric vector and magnetic vector for electromagnetic waves in free space.

**OR**

Apply Gauss law to calculate the electric field due to an infinite line charge.

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