Unit-2. Electrostatics (CO-2)

Part A: Give answers in short. (1 or 2 marks)

(1) Give definitions with its standard unit:

Electric field, Electric potential, Electric potential difference, Electric flux, Capacitor and capacitance

Part B: Write Answers in Detail. (2 or 3 marks)

(1) Explain Coulomb's law with mathematical formula.

(2) Explain characteristics of Electric field lines with figures.

(3) Write short note on parallel plate capacitor.

(4) Explain series connection of capacitors in detail.

(5) Explain parallel connection of capacitors in detail.

(6) Explain effect of dielectric material on the capacitance of parallel plate.

Part C : Numericals. (3 marks)

(1) Two charges with value of 20 μC and 10 μC are separated 0.02 m distance in air. Find electric force or coulomb force between these charges. K value is 9×10^9 N m^2/ C^2.

(2) 1600 Joule of work is done in moving a charge 25 coulomb from one point to the other. Calculate the potential difference between the points.

(3) A capacitor gets a charge 60 μC when it is connected to a battery of e.m.f. 12 V. Calculate the capacitance of the capacitor.
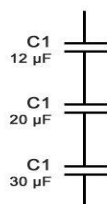
(4) Three capacitors of 10μF are connected in series and parallel connections in circuit. find out total capacitance in both cases.

(5) plat area of one parallel plat capacitor is 10 mm^2, which are separated with 1mm distance in air. Calculate capacitance of capacitor.

(6) The distance between the plats is 1mm, if we want to get capacitance of 1F, how much of area of plat should be?

(7) As per the below circuit, calculate total capacitance value.

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