

Worksheet: Electric Charges and Fields

IB · Class 12 · Physics · 8 questions · 26 marks

Name: _____

Date: _____

Score: _____ / 26

Q1. Two point charges of $4 \times 10^{-7} \text{ C}$ and $6 \times 10^{-7} \text{ C}$ are placed 20 cm apart in air. Find the force between them. *[2 marks]*

Q2. How many electrons must be removed from a body to give it a charge of $+1.6 \times 10^{-7} \text{ C}$? *[2 marks]*

Q3. Find the electric field 30 cm from a point charge of $5 \times 10^{-6} \text{ C}$, and the force on a $-2 \times 10^{-9} \text{ C}$ charge placed there. *[3 marks]*

Q4. A uniform field of $2 \times 10^3 \text{ N/C}$ passes through a square of side 20 cm whose normal makes 30 degrees with the field. Find the flux. *[3 marks]*

Q5. A dipole of moment $6 \times 10^{-9} \text{ C m}$ is placed at 45 degrees to a uniform field of $4 \times 10^4 \text{ N/C}$. Find the torque on it. *[3 marks]*

Q6. A charge of $8.85 \times 10^{-6} \text{ C}$ is placed at the centre of a cube of side 15 cm. Find the flux through one face. [4 marks]

Q7. An infinite line charge produces a field of $4.5 \times 10^4 \text{ N/C}$ at 4 cm from it. Find the linear charge density. [4 marks]

Q8. Three charges of +2 microcoulomb each sit at the vertices of an equilateral triangle of side 10 cm. Find the net force on any one of them. [5 marks]
