

### Question 34241

We are given  $q=14\text{ C}$  ,  $B=0.5\text{ T}$  ,  $v=10\frac{\text{m}}{\text{s}}$  . If a charge is placed into magnetic field, it experiences the Lorentz force:  $\vec{F}_L=q[\vec{v},\vec{B}]$  . The modulus of this force in case if  $\vec{v}$  and  $\vec{B}$  are perpendicular is  $F_L=qvB$  . Hence, given these values, obtain  $F_L=14\text{ C} \cdot 10\frac{\text{m}}{\text{s}} \cdot 0.5\text{ T} = 70\text{ N}$  - this is the force exerted on charge by magnetic field.