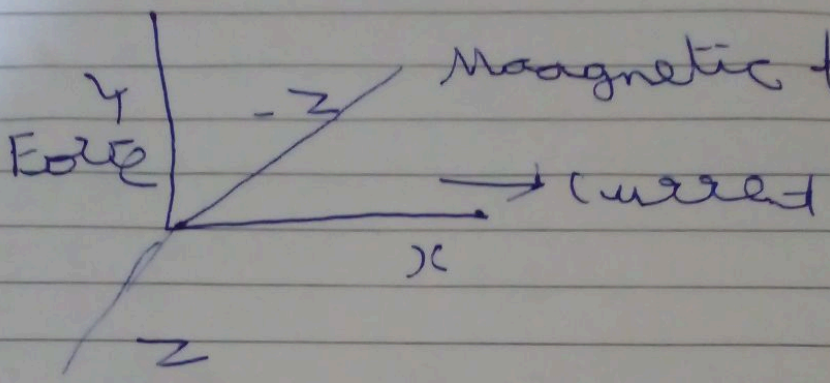
8th July

Moving charges & Magnetism

2. Using flemings Left hand Rule, According to this rule, we have to keep our fingers in following direction.



Since the values are in X-axis, the direction of current will be along Z-axis. Magnetic force is along Y-axis. Hence magnetic field will be in negative Z-axis direction.

3.

3. One Tesla is the magnetic field in which a charge of 1C moving with a velocity of $1ms^{-1}$ normal to magnetic field, experience a force of 1N

$$B = \frac{F}{qv\sin\theta}$$

$F = 1N$, $q = 1C$, $v = 1ms^{-1}$, $\theta = 90$

S.I units of $B = \frac{1N}{1C \cdot 1ms^{-1} \sin 90}$

$1N\,A^{-1}m^{-1} = 1Tesla$

4. Mass of Electron is low as compared to proton hence when both enter into uniform magnetic region, the electron will move in a circular path with higher frequency in opposite direction to current

Electron will move with higher frequency

8*

5. Normal - Cylindrical
At an angle of 30° - Helical
Path