IB Physics HL Notes

Electromagnetic Induction

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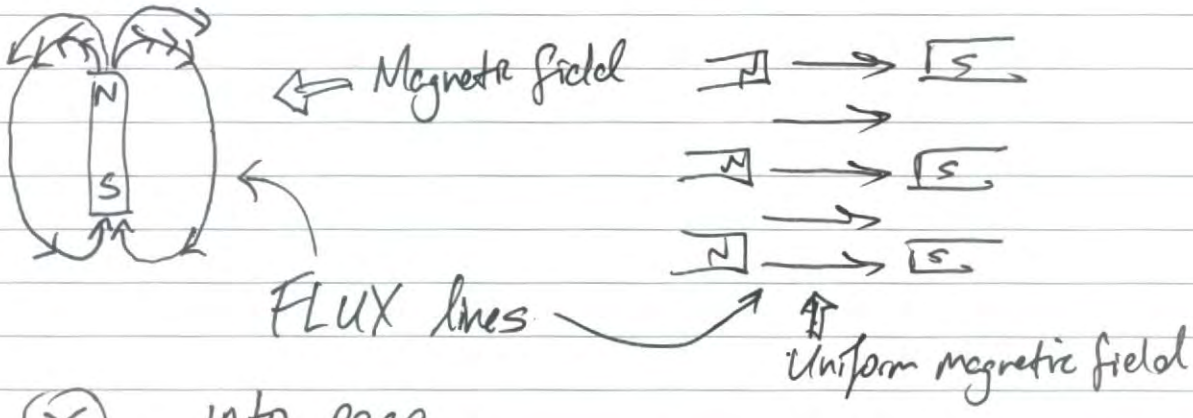
Visit http://thequantumbyte.com/ibnotes for more information.

Electromagnetic Induction

Date No.

- Magnets must have N and S pole.



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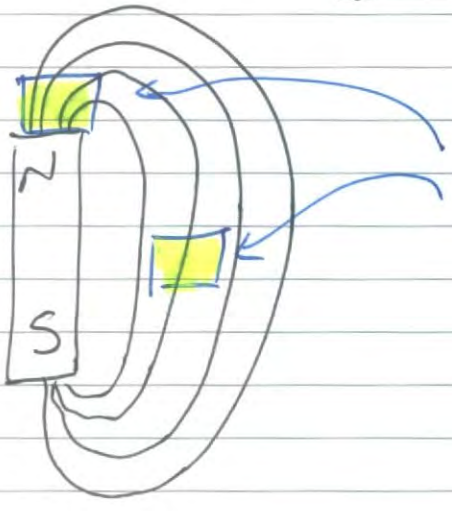
- Magnetic field unit : TESLA
- Earth mag field = $*10^{-4}$ T

$1\ T = 10\,000$ Gauss (G)

SI unit : $1\ T = \boxed{1\ \frac{Wb}{m^2}} = \frac{Weber}{m^2}$

- Weber is quantity of flux lines

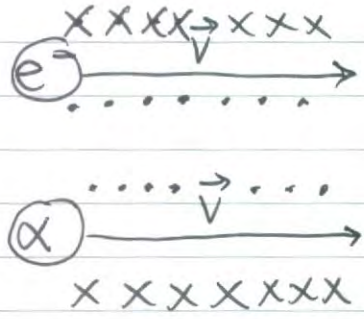
$1\ T = \boxed{1\ \frac{kg}{C \cdot s}}$



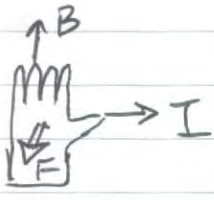
both $1m^2$ area,
greater concentration
of flux lines nearer magnet,
so field is greatest near magnet.

Magnetic Fields (unit 6)

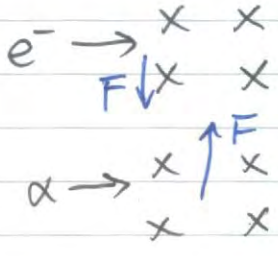
Date No.



RH Palm Rule

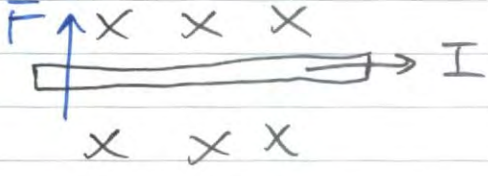


Free moving charge

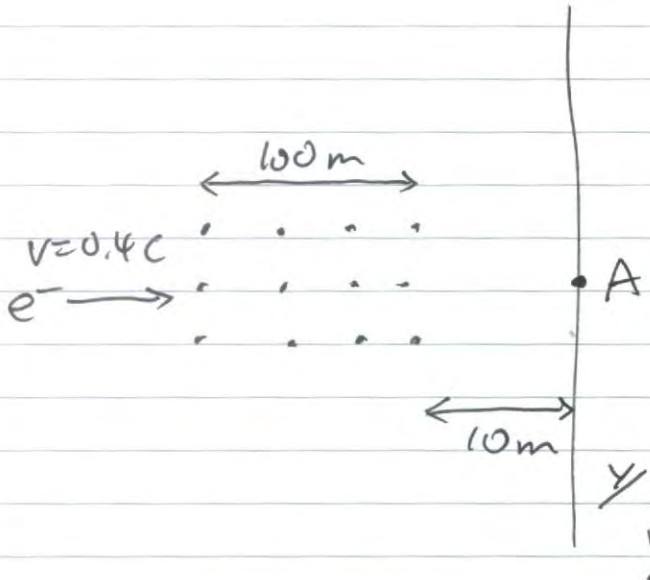


$F = qvB\sin\theta$

Current-carrying wire



$F = BIL\sin\theta$



$F = qvB$

$= 9.6\times10^{-12} = ma$

$m_e = 9.1\times10^{-31}$

so $a = 1.1\times10^{19}\ ms^{-2}$

x/ $t = \frac{100}{0.4c} \Rightarrow t = 8.3\times10^{-7}\ s$

y/ $u = 0$
$v = ?$
$a = 1\times10^{19}$
$t = 8.3\times10^{-7}$

$s = \frac{1}{2}at^2$

$= 3.79\times10^{6}\ m$ //