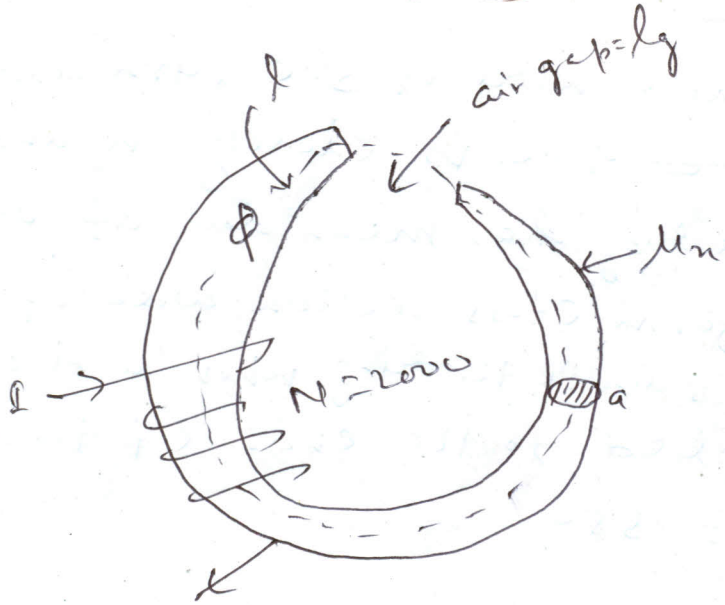

$a = 6\,cm^2 = 6 \times 10^{-4}\,m^2$

mean Dia of ring $D_m = 20\,cm = .2\,m$

length of air gap $= l_g = 2\,mm = 2 \times 10^{-3}\,m$

$\Phi = 0.001$ wb

$\mu_r = 1200$

l_m = (mean length of ring) $= \pi \times D_m$
$= \pi \times 0.2$
$= .6283\,m.$

$l_g = .002\,m$

length of iron path $l_i = .6283 - .002$
$= .6263\,m$

m.m.f = flux × reluctance

AT required for Iron path

$$= AT_i = \Phi \times \frac{l_i}{\Phi \mu_0 \mu_r}$$

$$= \frac{.001 \times .6263}{6 \times 10^{-4} \times 4\pi \times 10^{-7} \times 1200}$$

$= 692.21\,AT$

Ampere turns for air gap

$$AT_g = \frac{.001 \times .002}{6 \times 10^{-4} \times 4\pi \times 10^{-7} \times 1} = 2652.58$$

Total AT $= 692.28 + 2652.58 = 3344.79\,AT.$