Electromagnetism: Magnetic Effect of Electric Current

Typical Questions (Set-2)

A-01	-
A-02	40 cm
A-03	Zero on the middle wire and 6.0×10^{-4} N towards the middle wire on each of the rest two
A-04	2 cm from the 10 A current and 8 cm from the other
A-05	3×10^{-3} N/m, downward Zero
A-06	0.50 A in opposite direction
A-07	(a) Proved (b) 1.6×10^{-5} N towards wire AB
A-08	1.57 cm
A-09	48 mA
A-10	6×10^{-10} T
A-11	Zero
A-12	(a) $8\pi \times 10^{-4}$ T (b) Zero
A-13	1.8 T
A-14	$16\pi \times 10^{-19}$ N
A-15	$\dfrac{\mu_0 \pi i l r^2}{2R}$
A-16	$\dfrac{\mu_0 \pi i l r}{4R}$
A-17	1.6×10^{-5} T
A-18	1.26×10^{-5} T
A-19	At a distance of $\dfrac{4r}{\pi}$ from the center in such a way that the direction of the current in it is

	opposite to that in the nearest part of the circular wire
A-20	(a) 2.51 mT (b) 7.66 cm
A-21	4.0×10^{-5} T, downward in both cases
A-22	1.88×10^{15} m/s
A-23	(a) Zero (b) $\dfrac{\mu_0 i}{3\pi r}$
A-24	(a) Zero (b) $\dfrac{\mu_0 i}{2\pi b}$
A-25	$\dfrac{\mu_0 i a}{2\pi b^2}$
A-26	(a) 2.0 µT (b) 10 µT (c) 5.0 µT
A-27	-
A-28	$0, \mu_0, K$ towards right in the figure, 0
A-29	$\dfrac{\mu_0 K q r}{m}$
A-30	5000 turns/m
A-31	$2\pi \times 10^{-3}$ T
A-32	1 V
A-33	(a) $\dfrac{\mu_0 n i}{\sqrt{1 + \left(\frac{2a}{l}\right)^2}}$
A-34	1420 turns/m
A-35	$\dfrac{\mu_0 q r n i}{2m}$
A-36	(a) $\dfrac{K}{2n}$ (b) $\dfrac{\mu_0 K}{\sqrt{2}}$
A-37	$16\pi \times 10^{-8}$ T

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