8. ELECTRIC FIELD (6 points) *(by L. Franti)* A conducting ring with radius R carries a large current I. The ring lies stationary in the xy-plane with its centerpoint at $(0, 0, 0)$. An observer approaches the ring parallel to the z-axis with velocity v and measures the electric field at distance r from the axis. Assume that $v \ll c$ and $r \ll R$.

i) *(2 points)* Find the direction and magnitude of the magnetic field $B(z)$ on z axis in stationary reference frame.

ii) *(4 points)* Estimate the magnitude and direction of electric field $E(z, r)$ measured by the observer when he is at a distance z from the ring's plane.