
Infinitely long cylindrical bar magnet. An infinitely long cylindrical bar magnet of radius a , is permanently magnetized with a uniform magnetization, and the magnetization vector, of magnitude M , is parallel to the bar axis. Magnitudes of the magnetization volume and surface current density vectors, \mathbf{J}_m and \mathbf{J}_{ms} , over the volume and surface of the magnet, respectively, are

- (A) $J_m = M$ and $J_{ms} = 0$
- (B) $J_m = 0$ and $J_{ms} = M$
- (C) $J_m = \mu_0 M$ and $J_{ms} = M/a$
- (D) $J_m = M/a$ and $J_{ms} = M$
- (E) $J_m = 0$ and $J_{ms} = 0$

(μ_0 is the permeability of vacuum.)

Solution: (B)

Answer: (B)