A metal sample carrying a current along X-axis with density $J_x$ is subjected to a magnetic field $B_z$ (along z-axis). The electric field $E_y$ developed along Y-axis is directly proportional to $J_x$ as well as $B_z$. The constant of proportionality has SI unit

(a) $\dfrac{m^2}{A}$    (b) $\dfrac{m^3}{As}$      (c) $\dfrac{m^2}{As}$      (d) $\dfrac{As}{m^3}$

**(b)** According to question

$$E_y \propto J_x B_Z$$

$\therefore$ Constant of proportionality

$$K = \frac{E_y}{B_Z J_x} = \frac{C}{J_x} = \frac{m^3}{As}$$

[As $\dfrac{E}{B} = C$ (speed of light) and $J = \dfrac{I}{\text{Area}}$]