Coaxial cable with a radial variation of permittivity. A coaxial cable is filled with a continuously inhomogeneous dielectric and connected to voltage source. The permittivity of the dielectric is a function of the radial distance r from the cables axis and no other coordinates. Consider vectors $\mathbf{D}$ and $\mathbf{E}$ in the cable. The way in which each of the vector varies throughout the dielectric is the same as in the same cable if air-filled for

(A) both vectors.
(B) vector $\mathbf{D}$ only.
(C) vector $\mathbf{E}$ only.
(D) None of the vectors.

Solution: (B)
Answer: (B)