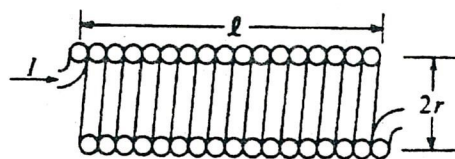
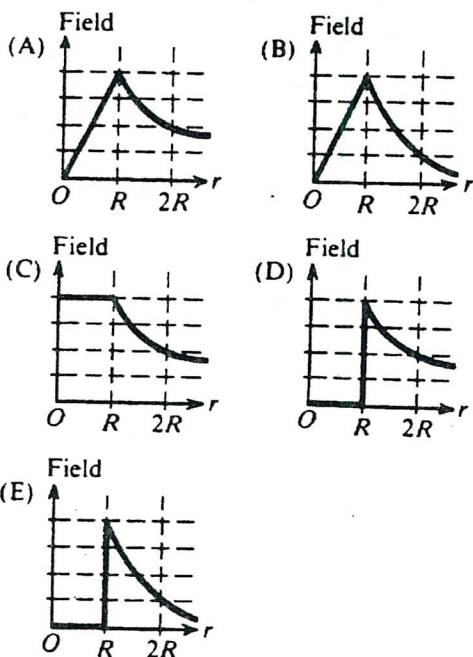


66. An isolated capacitor with air between its plates has a potential difference V_0 and a charge Q_0 . After the space between the plates is filled with oil, the difference in potential is V and the charge is Q . Which of the following pairs of relationships is correct?

- (A) $Q = Q_0$ and $V > V_0$
- (B) $Q = Q_0$ and $V < V_0$
- (C) $Q > Q_0$ and $V = V_0$
- (D) $Q < Q_0$ and $V < V_0$
- (E) $Q > Q_0$ and $V > V_0$

67. A solid cylindrical conductor of radius R carries a current I uniformly distributed throughout its interior. Which of the following graphs best represents the magnetic field intensity as a function of r , the radial distance from the axis of the cylinder?



68. The cross section above shows a long solenoid of length ℓ and radius r consisting of N closely wound turns of wire. When the current in the wire is I , the magnetic field within this solenoid has magnitude B_0 . A solenoid with the same number of turns N , length ℓ , and current I , but with radius $2r$, would have a magnetic field of magnitude most nearly equal to

- (A) $B_0/4$
- (B) $B_0/2$
- (C) B_0
- (D) $2 B_0$
- (E) $4 B_0$