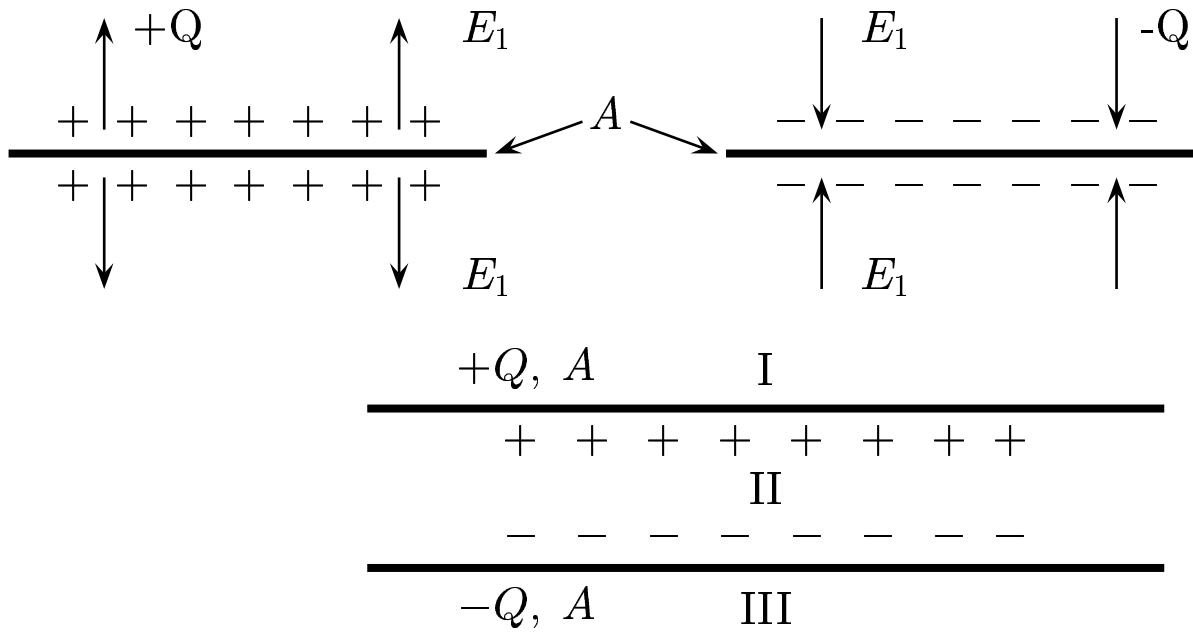


Given 1-plate pattern,  $E_1 = \frac{Q}{2 \epsilon_0 A}$ :



Find electric fields  $E$  of parallel plate system in I, II and III.

- A)  $E_I = 0$  and  $E_{II} = 2 E_1 \downarrow$  and  $E_{III} = 0$ .
- B)  $E_I = E_1 \uparrow$  and  $E_{II} = 2 E_1 \uparrow$  and  $E_{III} = E_1 \downarrow$ .
- C)  $E_I = E_1 \uparrow$  and  $E_{II} = E_1 \uparrow$  and  $E_{III} = E_1 \downarrow$ .

Apply the superposition principle

|           | Top plate | Bottom plate | Both plates |
|-----------|-----------|--------------|-------------|
| $E_I$     | $+E_1$    | $-E_1$       | 0           |
| $E_{II}$  | $-E_1$    | $-E_1$       | $-2 E_1$    |
| $E_{III}$ | $-E_1$    | $+E_1$       | 0           |

Answer **A**.