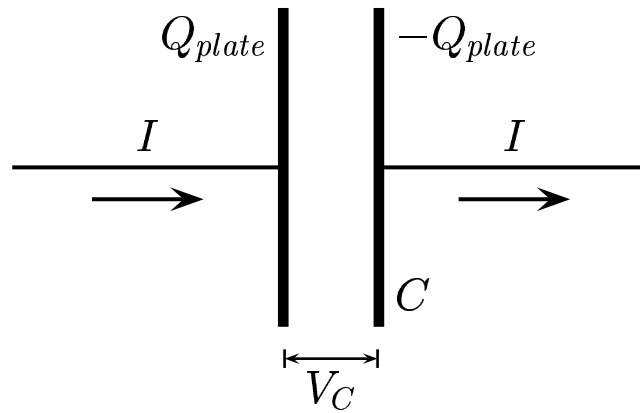


Consider the set up shown in the sketch.



Which of the following quantities is numerically equal to I ?

- A) $I = \frac{dQ_{plate}}{dt}$.
- B) $I = C \frac{dV_C}{dt}$.
- C) $I = \epsilon_0 \frac{d\phi_E}{dt}$.
- D) All of the above

$Q_{plate} = C V_C$. For a parallel plate system, $E = \frac{Q_{plate}}{\epsilon_0 A}$, so $Q_{plate} = \epsilon_0 A E$.

The displacement current is equal to I .

Answer **D**.