In an oscillating LC circuit the maximum charge on the capacitor is Q. The charge on the capacitor when the energy is stored equally between the electric and magnetic field is

A $\frac{Q}{2}$

B $\frac{Q}{\sqrt{3}}$

C $\frac{Q}{\sqrt{2}}$

D Q

When capacitor is fully charged, total energy in the LC circuit is magnetic energy which is stored in the capacitor given by -

$$U_{max} = \frac{1}{2}\frac{Q^2}{C} \quad \text{— (1)}$$

Also, when half energy is with capacitor in form of electric field between capacitor plates given by -

$$\frac{U_{max}}{2} = \frac{1}{2}\frac{q^2}{C}$$

{where 'q' is charge on capacitor plate when energy is shared equally.}

— (2)

From (1) & (2)

$$\boxed{q' = \frac{Q}{\sqrt{2}}}$$