Chapter 6, Solution 27.

Given that four 4-μF capacitors can be connected in series and in parallel, find the minimum and maximum values that can be obtained by such series/parallel combinations.

Solution

If they are all connected in parallel, we get $C_T = 4x4\mu F = 16\mu F$

If they are all connected in series, we get

$$\frac{1}{C_T} = \frac{4}{4\mu F} \longrightarrow C_T = 1\mu F$$

All other combinations fall within these two extreme cases. Hence,

$$C_{min} = \mathbf{1\ \mu F},\ C_{max} = \mathbf{16\ \mu F}$$