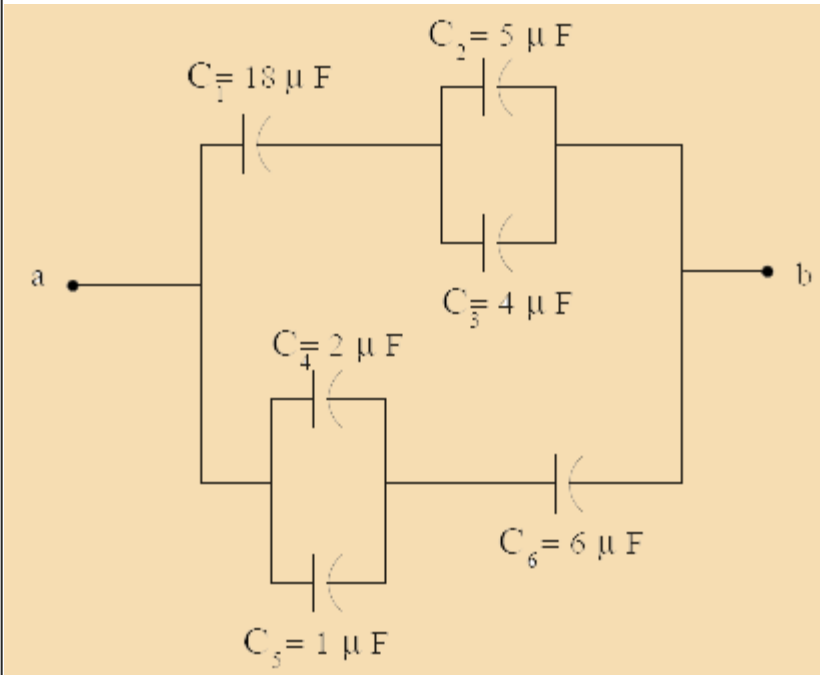## Exercise 1

Determine the effective capacitance of the following capacitance circuit and find the voltage across each capacitance if the voltage across the points a and b is 300 V.

$C_2 = 5\,\mu F$
$C_1 = 18\,\mu F$
$C_3 = 4\,\mu F$
$C_4 = 2\,\mu F$
$C_6 = 6\,\mu F$
$C_5 = 1\,\mu F$
a
b

[Ans. 8 μF., 100V,200V,200V,200V,200V,100V]

Exercise 2

Two parallel, infinite plates made of material of perfect conductor, carry charges Q_1 and Q_2. The plates have finite thickness. Show that the charge densities on the two adjacent inside surfaces are equal and opposite while that on the two outside surfaces are equal.

(Hint : Field inside the plates due to four charged surfaces must be zero.)