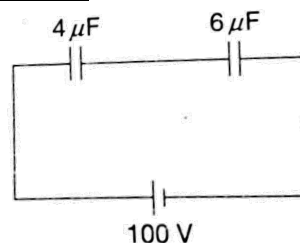


Capacitive circuit evaluation test

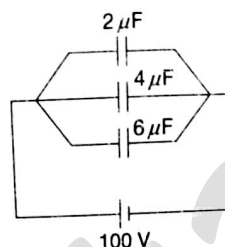
1. In the circuit shown in the figure, find

- (a) the equivalent capacitance
- (b) the charge stored in each capacitor and
- (c) the potential difference across each capacitor .



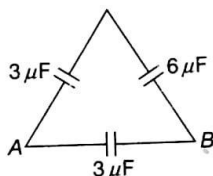
2. In the circuit shown in the figure, find

- (a) the equivalent capacitance
- (b) the charge stored in each capacitor

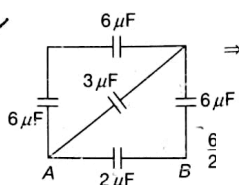


3. find the total capacitance between the points A and B.

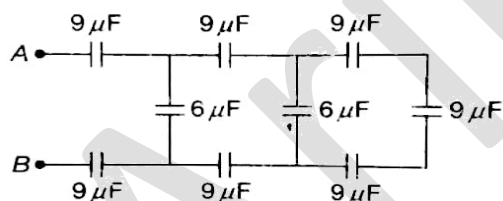
(i)



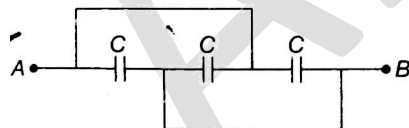
(ii)



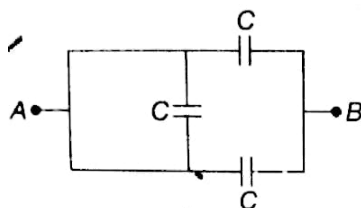
(iii)



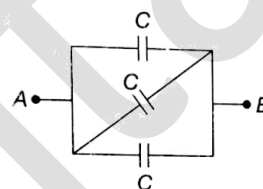
(iv)



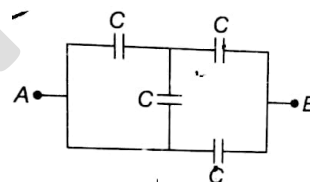
(v)



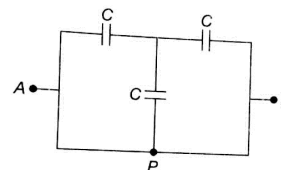
(vi)



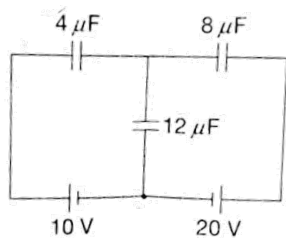
(vii)



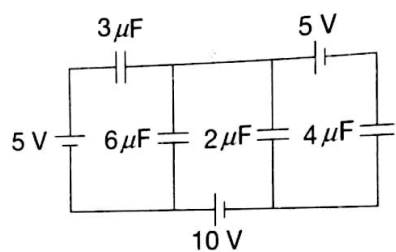
(viii)



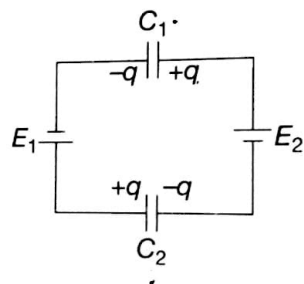
4. Find the charges on the three capacitors shown in figure



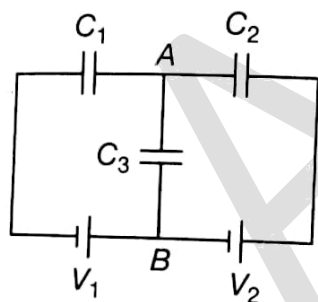
5. In the circuit shown, find the charges on $6\ \mu\text{F}$ and $4\ \mu\text{F}$ capacitors.



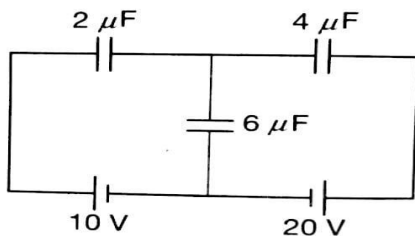
6. Find the charges on capacitors C_1 and C_2 in the circuit shown in the figure.



7. Calculate the potential difference between points A and B in the circuit shown in figure.



8. Find the charges on the three capacitors shown in figure.



ANSWER KEY

1. (a) $2.4\mu\text{F}$ (b) $240\mu\text{F}$ (c) 40V

2. (a) $12\mu\text{F}$ (b) $q_1=200\mu\text{F}$ $q_2=400\mu\text{F}$ $q_3=600\mu\text{F}$

3. (i) $5\mu\text{F}$ (ii) $5\mu\text{F}$ (iii) $3\mu\text{F}$ (iv) $C_{AB}=3C$ (v) $C_{AB}=2C$ (vi) $C_{AB}=3C$

(vii) Equivalent capacitance between A and B is $\frac{5C}{3}$.

(viii) Equivalent capacitance of this circuit is 0

4. $q_1=\frac{20}{3}\mu\text{C}$ $q_2=\frac{280}{3}\mu\text{C}$ $q_3=100\mu\text{F}$

5. $\frac{40}{3}\mu\text{F}$

6. $|q| = \frac{|E_2 - E_1|C_1C_2}{C_1 + C_2}$

7. $V_{AB} = \frac{V_2C_2 - V_1C_1}{C_1 + C_2 + C_3}$

8. $\frac{1}{u} = N^{\frac{5}{3}}$