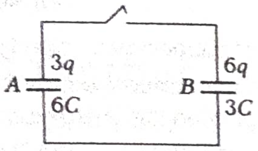
Check point 2.5

1. Three capacitors each of capacitance C and of breakdown voltage V are joined in series. The capacitance and breakdown voltage of the combination will be

(a) $\frac{C}{3}, \frac{V}{3}$ (b) $3C, \frac{V}{3}$

(c) $\frac{C}{3}, 3V$ (d) $3C, 3V$

2. In given circuit when switch S has been closed, then charge on capacitor A and B respectively,



(a) $3q, 6q$ (b) $6q, 3q$

(c) $4.5q, 4.5q$ (b) $5q, 4q$

3. Three condensers each of capacitance 2 F are put in series. The resultant capacitance is

(a) 6 F (b) $\frac{3}{2}$ F

(c) $\frac{2}{3}$ F (d) 5 F

4. Two capacitors of capacitance $2\,\mu$F and $3\,\mu$F are joined in series. Outer plate of first capacitor is 1000 V and outer plate of second capacitor is earthed (grounded). Now the potential on inner plate of each capacitor will be

(a) 700 V (b) 200 V

(c) 600 V (d) 400 V

5. A series combination of three capacitors of capacities $1\,\mu$F, $2\,\mu$F and $8\,\mu$F is connected to a battery of emf 13 V. The potential difference across the plates of $2\,\mu$F capacitor will be

(a) 1 V (b) 8 V

(c) 4 V (d) $\frac{13}{3}$ V

6. A parallel plate capacitor is made by stacking n equally spaced plates connected alternately. If the capacitance between any two plates is C, then the resultant capacitance is

(a) C (b) nC (c) $(n-1)C$ (d) $(n+1)C$

7. Four capacitors of equal capacitance have an equivalent capacitance C_1 when connected in series and an equivalent capacitance C_2 when connected in parallel. The ratio $\frac{C_1}{C_2}$ is

(a) $\frac{1}{4}$ (b) $\frac{1}{16}$ (c) $\frac{1}{8}$ (d) $\frac{1}{12}$

8. Three capacitors of capacitance $3\,\mu$F are connected in a circuit. Then, their maximum and minimum capacitances will be

(a) $9\,\mu$F, $1\,\mu$F (b) $8\,\mu$F, $2\,\mu$F

(c) $9\,\mu$F, $0\,\mu$C (d) $3\,\mu$F, $2\,\mu$F

9. Three capacitors each of capacity $4\,\mu$F are to be connected in such a way that the effective capacitance is $6\,\mu$F. This can be done by

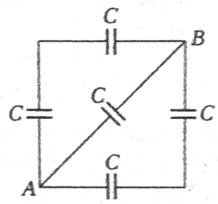
(a) connecting them in parallel

(b) connecting two in series and one in parallel

(c) connecting two in parallel and one in series

(d) connecting all of them in series

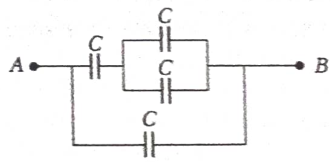
10. In the figure shown, the effective capacitance between the points A and B, if each has capacitance C, is



(a) $2C$ (b) $C/5$

(c) $5C$ (d) $C/2$

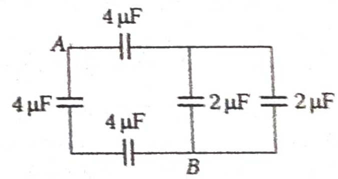
11. Four equal capacitors, each of capacity C, are arranged as shown. The effective capacitance between A and B is



(a) $\frac{5}{8}C$ (b) $\frac{3}{5}C$

(c) $\frac{5}{3}C$ (d) C

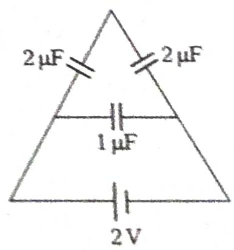
12. In the circuit as shown in the figure, the effective capacitance between A and B is



(a) $3\,\mu$F (b) $2\,\mu$F

(c) $4\,\mu$F (d) $8\,\mu$F

13. The charge on anyone of the $2\,\mu$F capacitors and $1\,\mu$F capacitor will be given respectively (in μC) as



(a) 1, 2 (b) 2, 1 (c) 1, 1 (d) 2,2