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DPP – 2 (Capacitor)

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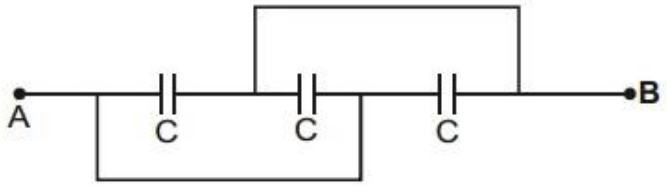
Q 1. Find the equivalent capacitance of the given circuit:

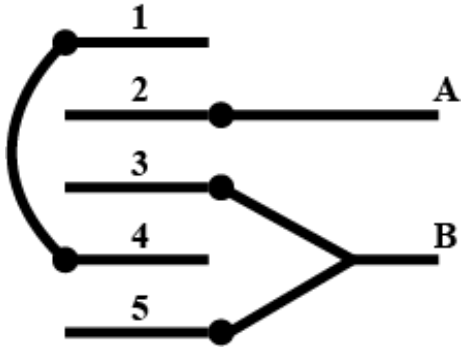


(a) $\frac{3C}{2}$ (b) $\frac{C}{3}$
(c) 3C (d) C

Q 2. A capacitor $C_1 = 4\ \mu F$ is connected in series with another capacitor $C_2 = 1\ \mu F$. he combination is connected across a D.C. source of voltage 200 V. The ration of potential across C_1 and C_2 is:
(a) 1 : 4 (b) 4 : 1
(c) 1 : 2 (d) 2 : 1

Q 3. The equivalent capacitance of three capacitors of capacitance C_1, C_2 and C_3 connected in parallel is 12 units and the product $C_1C_2C_3$ =48. When the capacitors C_1 and C_2 are connected in parallel the equivalent capacitance is 6 units. Then the capacitance are :
(a) 1.5, 2.5, 8 (b) 2, 3, 7
(c) 4, 2, 6 (d) 1, 5, 6

Q 4. Five identical metal plates 1, 2, 3, 4 and 5 each of area A on one side are fixed parallel and equidistant (d) to each other. The plates 1 and 4 are joined by a conductor, and plates 3 and 5 are also joined by a conductor as shown in figure. Then, the capacitance of this system between A and B is-



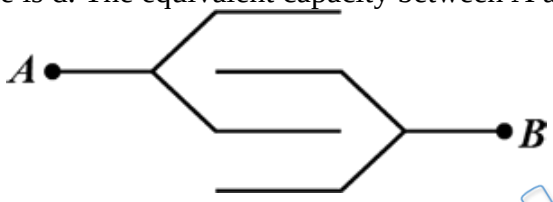
(a) $\frac{5\varepsilon_o A}{d}$ (b) $\frac{4\varepsilon_o A}{d}$

(c) $\frac{5\varepsilon_o A}{3d}$ (d) none of these

Q 5. Three capacitors of capacitances 2 pF, 3pF and 4pF are connected in parallel. What is the total capacitance of the combination?

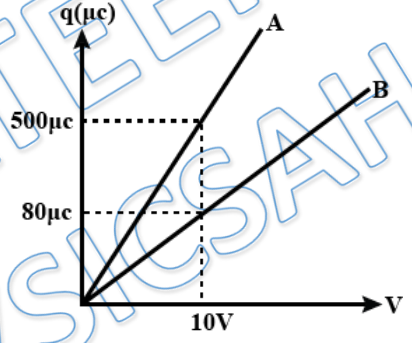
(a) 9 pF (b) 1 pF
(c) 5 pF (d) 15 pF

Q 6. Four plates of same area of cross-section A are joined as shown in figure. The distance between each plate is d. The equivalent capacity between A and B will be



(a) $\frac{2\varepsilon_o A}{d}$ (b) $\frac{\varepsilon_o A}{d}$
(c) $\frac{3\varepsilon_o A}{d}$ (d) $\frac{3\varepsilon_o A}{2d}$

Q 7. Plot A&B represent variation of charge with potential difference across the combination (series and parallel) of two capacitors. Then find the value of capacitance of capacitors.

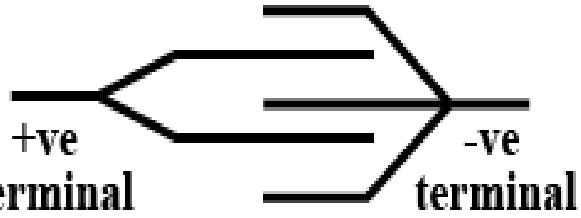


(a) 20 μF, 30 μF (b) 10 μF, 40 μF
(c) 10 μF, 15 μF (d) 25 μF, 25 μF

Q 8. Find the total capacitance for three capacitors of 10f,15f and 35f in parallel with each other?

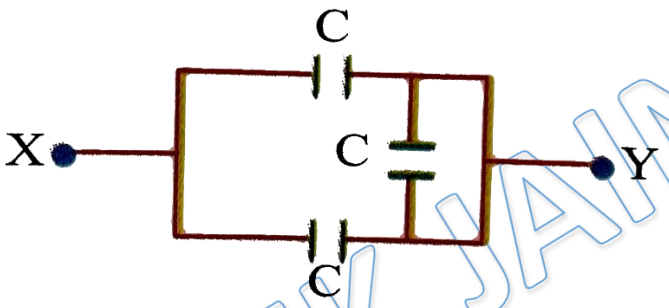
(a) 20 F (b) 50 F
(c) 60 F (d) 10 F

Q 9. Five identical parallel conducting plates each of area A have separation 'd' between successive surface. The plates are connected to the terminal of a battery as shown in the figure. The effective capacitance of the circuit is



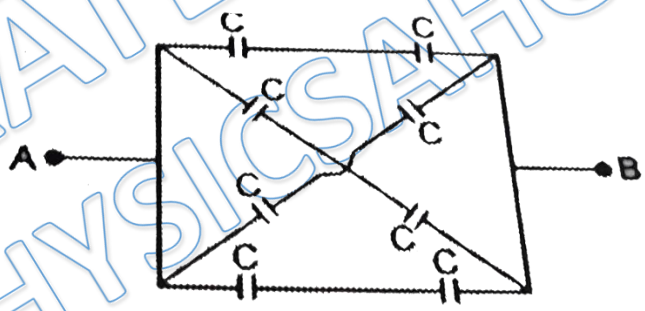
(a) $\frac{A\varepsilon_o}{4d}$ (b) $\frac{4A\varepsilon_o}{d}$
(c) $\frac{A\varepsilon_o}{3d}$ (d) $\frac{3A\varepsilon_o}{4d}$

Q 10. The equivalent capacity between the points X and Y in the circuit with C=1μF.



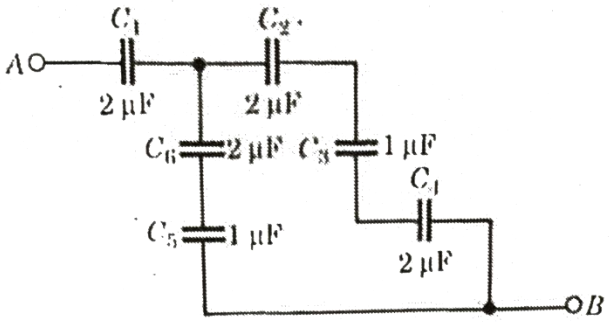
(a) 2 μF (b) 3 μF
(c) 1 μF (d) 0.5 μF

Q 11. In the adjoining circuit, the capacity between the points A and B will be -



(a) C (b) 2C
(c) 3C (d) 4C

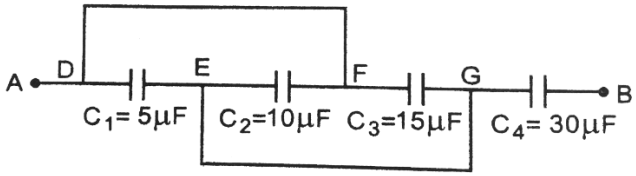
Q 12. Calculate the equivalent capacitance between the points A and B of the circuit given below.



(a) $\frac{14}{19}$ μF (b) $\frac{13}{17}$ μF

(c) $\frac{21}{13}$ μF (d) $\frac{11}{21}$ μF

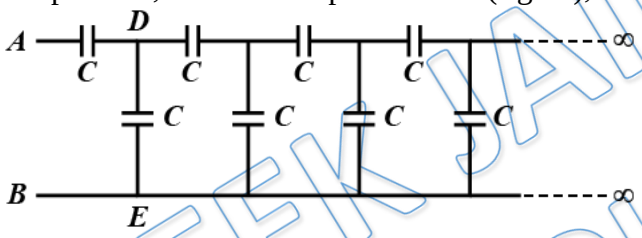
Q 13. Calculate the equivalent capacitance between the points A and B in the combination shown in Fig.



(a) 15 μF (b) 10 μF

(c) 20 μF (d) 25 Mf

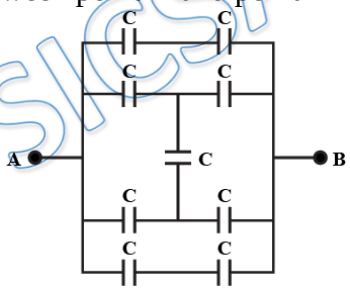
Q 14. The capacitance of a infinite circuit formed by the repetition of the same link consisting of two identical capacitors, each with capacitance C (figure), is :



(a) xero (b) $\frac{\sqrt{5}-1}{2}C$

(c) $\frac{\sqrt{5}+1}{2}C$ (d) infinite

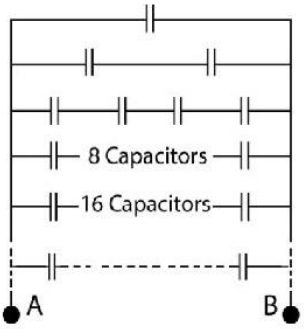
Q 15. The resultant capacity between point A and point B in the following circuit will be:



(a) C (b) $\frac{C}{2}$

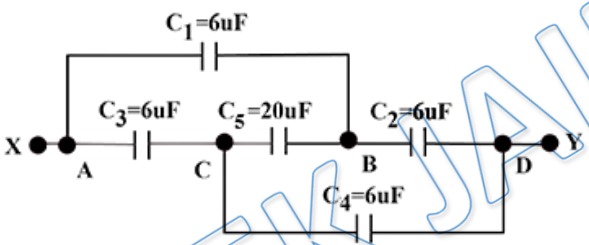
(c) 2C (d) 3C

Q 16. An infinite number of identical capacitors, each of capacitance 1μF are connected as shown in the figure. Then the equivalent capacitance between A and B is :



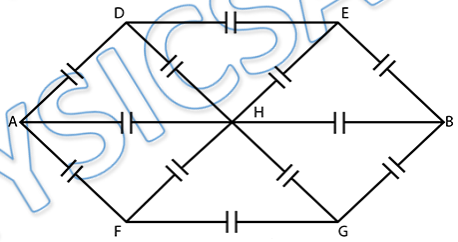
(a) 1 μF (b) 2 μF
(c) $\frac{1}{2}$ μF (d) infinite

Q 17. What is the equivalent capacitance between X and Y?



(a) 10 μF (b) 15 μF
(c) 18 μF (d) 6 μF

Q 18. What is the equivalent capacitance between A and B if capacitance of each capacitor is C?



(a) $\frac{5C}{4}$ (b) $\frac{3C}{2}$
(c) $\frac{2C}{3}$ (d) $\frac{4C}{5}$

Answer Key

Q.1 c	**Q.2 a**	**Q.3 c**	**Q.4 c**	**Q.5 a**
Q.6 c	**Q.7 b**	**Q.8 c**	**Q.9 b**	**Q.10 a**
Q.11 b	**Q.12 a**	**Q.13 a**	**Q.14 b**	**Q.15 c**
Q.16 b	**Q.17 d**	**Q.18 a**		