G.N. National Public School Gorakhpur

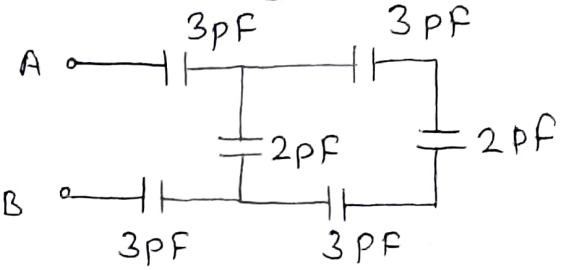
Assignment-1 (Physics)

Topic- Capacitor

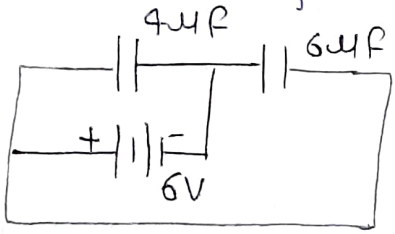
Q:-1:- 27 drops of same size are charged at 220V each. They combine to form a bigger drop. Calculate the potential of bigger drop.

Q:-2:- The effective capacitance of two capacitors are 3μf and 16μf, when they are connected in series and parallel respectively. Compute the capacitance of each capacitor.

Q:-3:- Calculate equivalent capacitance of the network shown in figure between point A and B-

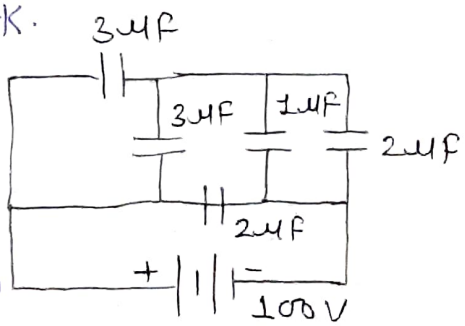


Q:-4:- Two capacitors C_1 and C_2 are connected to a battery of 6V as shown in figure find charge on each capacitor-



Q:-5:- A capacitor of 4μf is connected to 400V supply. It is then disconnected and connected to an uncharged capacitor of 2μf. Calculate the common potential after the capacitors are connected together.

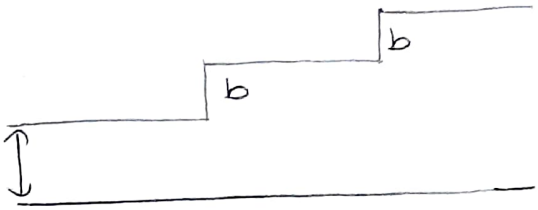
Q:-6:- figure shows a network of five capacitors are connected to a 100V supply. calculate the total charge and energy stored in the network.



Q:-7:- Find ratio of the potential differences that must be applied across (i) parallel (ii) series combination of two identical capacitors so that the energy stored in two cases becomes same?

Q:-8:- Keeping the voltage of the charging source constant what would be the percentage change in the energy stored in a parallel plate capacitor, if the seperation between its plates were to be decreased by 10%?

Q:-9:- A capacitor is made of a flat plate of Area A and a second plate having a stair-like structure as shown in figure-
The height of first step is d while those of subsequent steps is d
b as shown in figure calculate the capacitance of the structure.



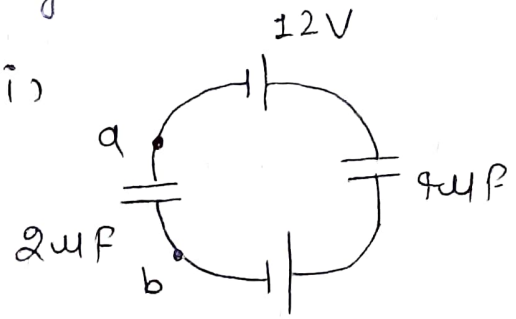
Q:-10:- Two capacitors of 25μF and 100μF are connected in series to a source of 120V. Keeping their charges unchanged they are seperated and connected in parallel to each other find out-

(a) potential diff between the plates of each capacitor

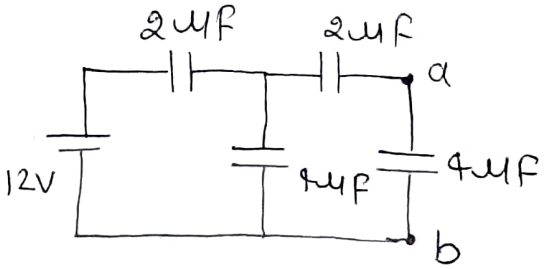
(b) Energy loss in the process.

Q:-11:- Find potential difference $V_a - V_b$ between the points a and b as shown in each part of the figure-

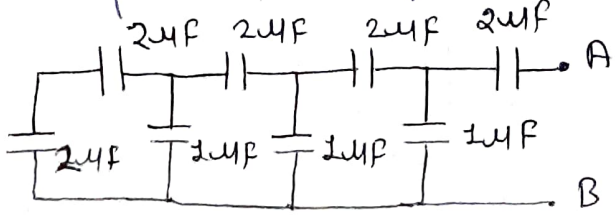
(i)



(ii)



Q:-12:- Find equivalent capacitance between A and B-



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