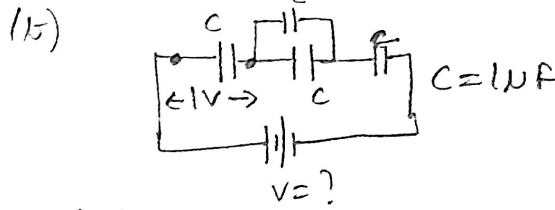
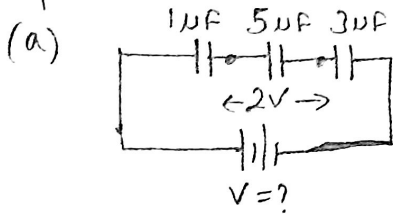
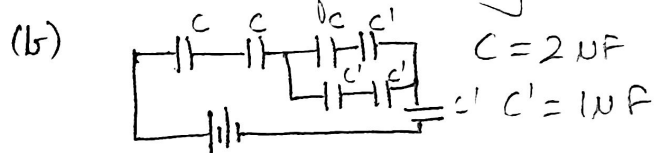
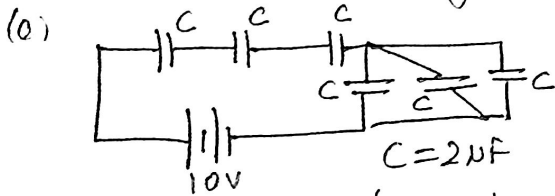


1- Find the total battery voltage & voltage across each capacitor in



2- Capacitance of a parallel plate capacitor is $80\mu\text{F}$, if the distance b/w plates is doubled & a dielectric medium of dielectric constant ($k=3$) is inserted between the plates, find new capacitance.

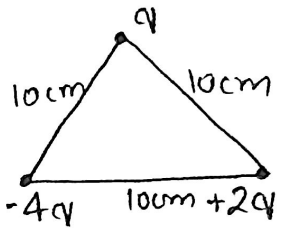
3- Find the energy stored in the following networks



4- A capacitor of capacitance $50\mu\text{F}$ is charged by 200V & connected to another uncharged $10\mu\text{F}$ capacitor. Find energy lost in the form of heat & electromagnetic radiations.

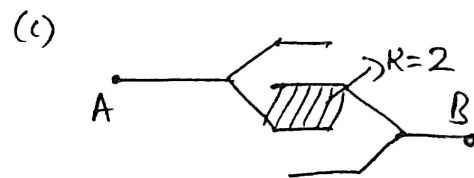
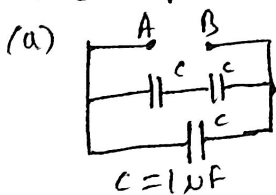
5- Two charges $-q$ & $+q$ are located at $A(0,0,-a)$ & $B(0,0,+a)$. How much work is done in moving a test charge from $P(8,0,0)$ to $Q(-4,0,0)$?

6- Calculate the work done to dissociate the system of three charges placed on the vertices of a triangle as shown in the fig. Here $q = 1.6 \times 10^{-10}\text{C}$.



7- Two capacitors of capacitances $3\mu\text{F}$ & $6\mu\text{F}$, are charged to potentials of 2V & 5V respectively. These two charged capacitors are connected in series. Find the potential across each of the two capacitors now.

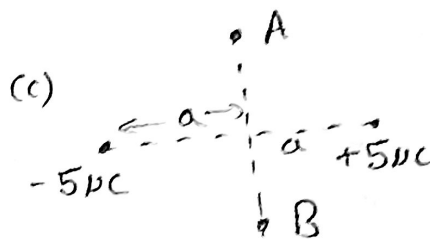
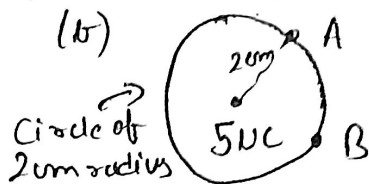
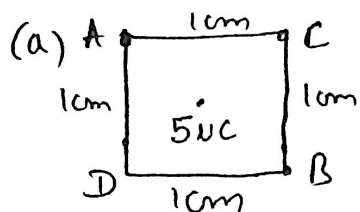
8- Find equivalent capacitance of the following circuits b/w A & B



9- A slab of material of dielectric constant K has the same area as the plates of a parallel plate capacitor but has thickness $d/2$, where d is separation b/w the plates. Find the expression for the capacitance when slab is inserted b/w the plates.

10- Three capacitors of capacitances $10\mu\text{F}$, $20\mu\text{F}$ & $30\mu\text{F}$ are connected in parallel to a 100V battery. Calculate the energy stored in the capacitors.

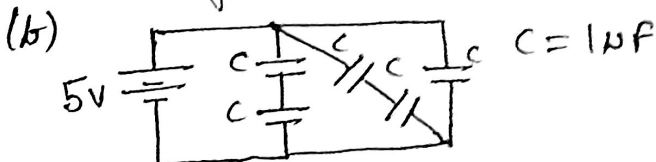
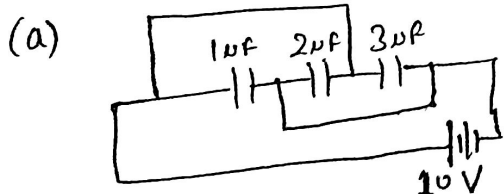
11- What is the work done in moving $1\mu\text{C}$ charge from A to B in the following figures



12- Three point charges $+q$, $+2q$ & Q are placed at the three vertices of an equilateral triangle. Find the value of charge Q (in terms of q), so that electric potential energy of the system is zero.

13- Two point charges, one of $100\mu\text{C}$ & another of $-400\mu\text{C}$, are kept 30cm apart. Find the points of zero potential on the line joining the two charges (assume the potential at ∞ to be zero).

14- Find the energy stored in the following network of capacitors



15- A parallel plate capacitor is charged by a battery. After some time the battery is disconnected & a dielectric slab with its thickness equal to the plate separation is inserted b/w the plates. What change, in any will take place in

- charge on the plates
- electric field intensity b/w the plates.
- capacitance of the capacitor
- potential difference b/w the plates
- energy stored in the capacitor