T071:
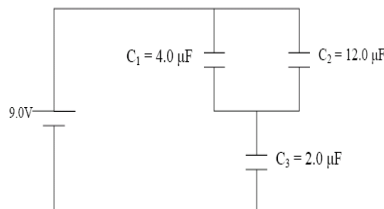
Q1. The three capacitors in the figure 1 have an equivalent capacitance of 2.77 μF. What is C_2? (Ans: 7 μF).
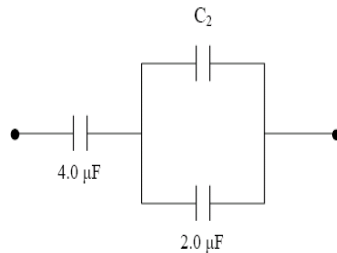
Q2. When the potential difference across a 5 μF capacitor is increased by 2 V, the energy stored increases by 10 %. What was the original potential difference? (Ans: 40 V).
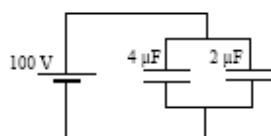
Q3. What is the charge on C3 in the figure 2? (Ans: 16 μC).

Q4. A parallel-plate capacitor is completely filled with a dielectric of dielectric constant 6, has a capacitance of 50 pF. If the plate separation is 0.1 mm, find the plate area. (Ans: 0.94 cm^2)

T062:

**Q14**. How much energy is stored in the combination of capacitors shown figure (5)?(Ans: 0.03 mJ)

Q15. Consider three identical capacitors. Their equivalent capacitance when connected in parallel is C_p, and their equivalent capacitance when connected in series is C_s. Which of the following statements is **CORRECT**? $(C_p=9C_s)$

Q16. Two parallel-plate capacitors are connected in series to a battery as shown in figure (6). A dielectric is inserted in capacitor C_1. (The charge on C_2 increases)
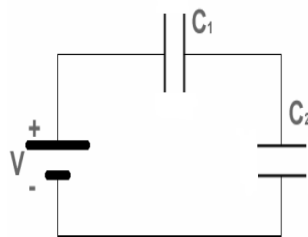
Q17.: Figure (7) shows three capacitors connected to a battery of voltage V = 6 Volts. The charges on the capacitors are known to be $Q_1 = 24\ \mu C$ for C_1 and $Q_2 = 96\ \mu C$ for C_2. What are the values of the capacitances C_1 and C_2? (Ans: C1=8 µF, C2= 16 µF)
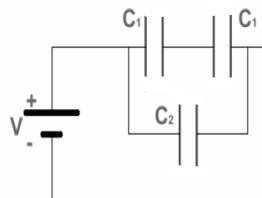
<u>**T061**</u>:
Q#15. A parallel plate capacitor has square shaped plates with an area $= 4.1\times10^{-3}\ m^2$ and 1.6×10^{-3} m separation. What charge will appear on the plates of such capacitor if a potential difference of 80 V is applied? (**Ans: 1.8×10^{-9} C**)

Q#16. An air filled parallel-plate capacitor has a capacitance of 3.0×10^{-12} F. The plate separation is then doubled and a wax dielectric is inserted, completely filling the space between the plates. As a result the, capacitance becomes 7.5×10^{-12} F . The dielectric constant of the wax is: **(Ans: 3)**

Q#15. A parallel plate capacitor has square shaped plates with an area $= 4.1 \times 10^{-3}$ m^2 and 1.6×10^{-3} m separation. What charge will appear on the plates of such capacitor if a potential difference of 80 V is applied? **(Ans:1.8×10^{-9} C)**

Q#17. A battery having potential difference V $=$ 12 V and four capacitors, each having a capacitance of $12\mu F$, are connected as shown in the figure 1. What is the charge on C2? **(Ans: 72μ C)**
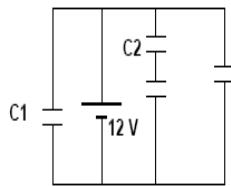
Q#18. Consider the combination of capacitors as shown in the Figure 2. The energy stored in the 8.0 µF capacitor is 0.40 J. The energy stored in the 5.0 µF capacitor is: **(Ans: 0.25 J)**