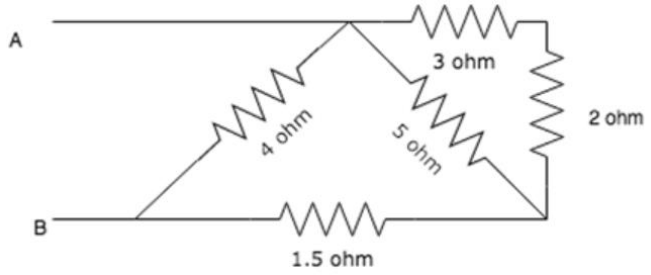
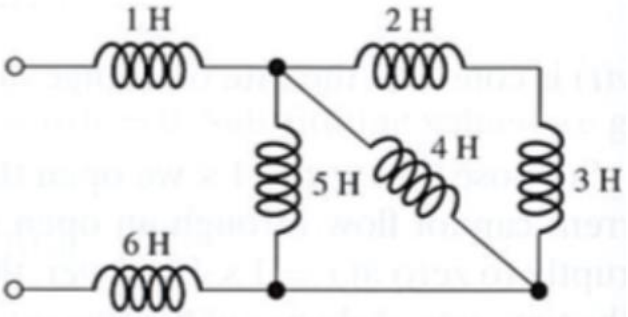
BECE101L – BASIC ELECTRONICS

DIGITAL ASSIGNMENT - 1

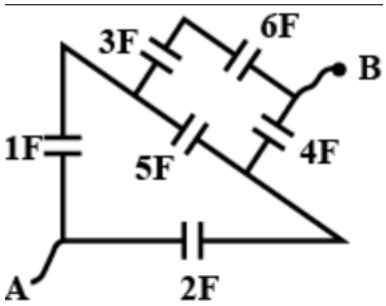
1. Find the equivalent resistance



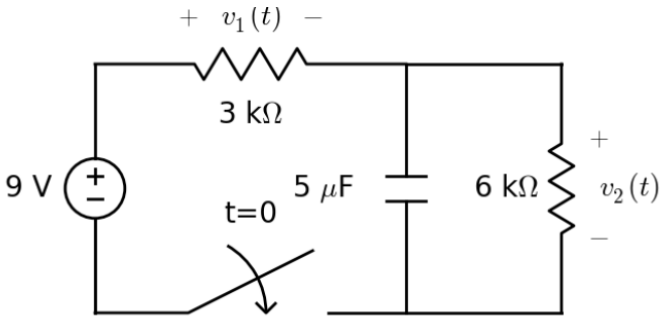
2. Find the equivalent inductance



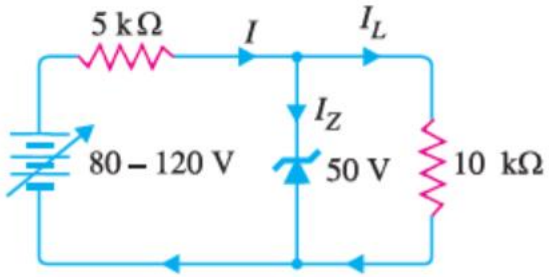
3. Find the equivalent capacitance



4. Find v1(t) and v2(t) at t>0 and t=3 sec



5. A silicon sample is doped with 10^{17} as atoms per cm^{-3}. What is the equilibrium hole concentration at 300K. Where is E_F relative to E_i
6. Assume that Fermi energy level for a particular material is 6.25eV. The electrons in this material follow Fermi Dirac distribution function. Calculate the temperature at which 1% probability that state 0.30 eV below the Fermi will not contain electron.
7. Determine the peak and rms voltages on the secondary of a transformer connected across a bridge rectifier to provide a no load dc voltage of 5V. If the secondary winding resistance is 3 ohms and dynamic resistance of each diode is 1 ohm, determine the dc output across a load resistance of 100 ohm and 1K. Also determine the regulation
8. **For the circuit shown in Fig.1 (i), find : (i) the output voltage (ii) the voltage drop across series resistance (iii) the current through zener diode.**



(*i*)