Assignment No.-4

(1) Determine the value of V_1 using Superposition Theorem.

A circuit with a $4\,\Omega$ resistor on top, a $4\,\Omega$ resistor in the middle left, a 12V source, a 2A current source, V_1 across a $2\,\Omega$ resistor, and a $6\,\Omega$ resistor.
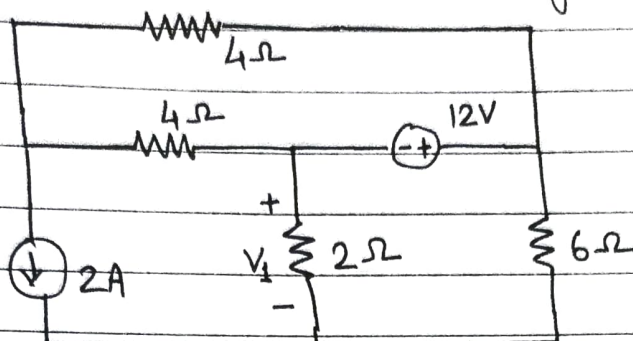
(2) Calculate the current in branch AB using Thevenin's theorem.

A bridge circuit with nodes A, B, C, D. $8\,\Omega$ and $12\,\Omega$ on top arms, $36\,\Omega$ between A and B, $4\,\Omega$ and $36\,\Omega$ on bottom arms, with a 40V source at B.
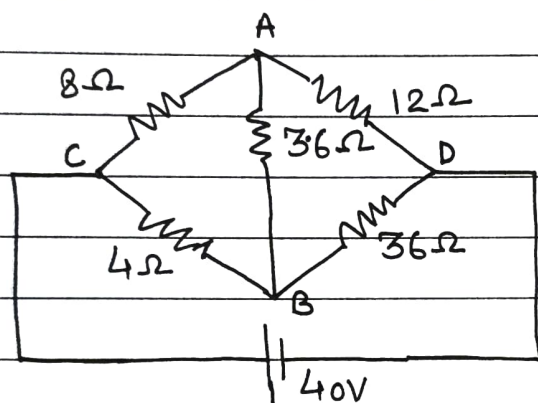
(3) Find the current through $10\,\Omega$ using Superposition.

A circuit with a $20\,\Omega$ resistor, 60V source, 30A current source, and $10\,\Omega$ resistor.
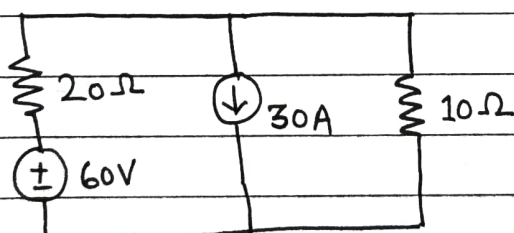
(4) Find the value of R_L for the maximum power transfer in of. Also find the max. power.

A circuit with a $4\,\Omega$ resistor, 10V source, $2\,\Omega$ resistor, 130V source, $6\,\Omega$ resistor, 38A current source, and R_L between nodes A and B.