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19BCE1027

Date-6/12/21 LAB FAT

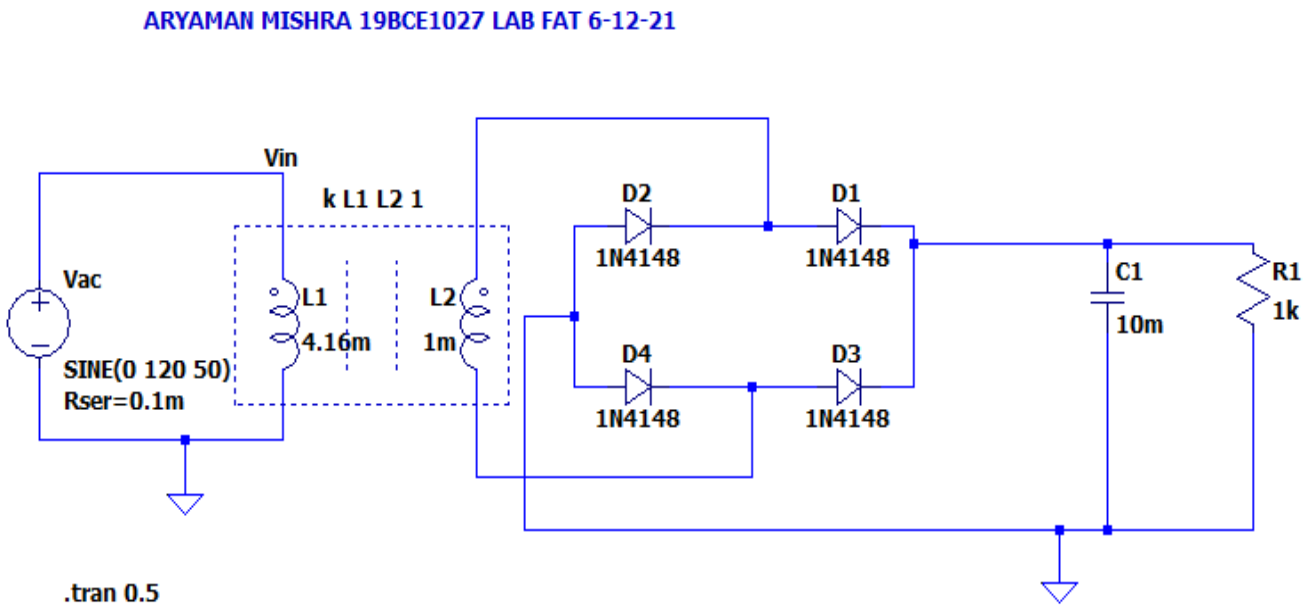
Aim:

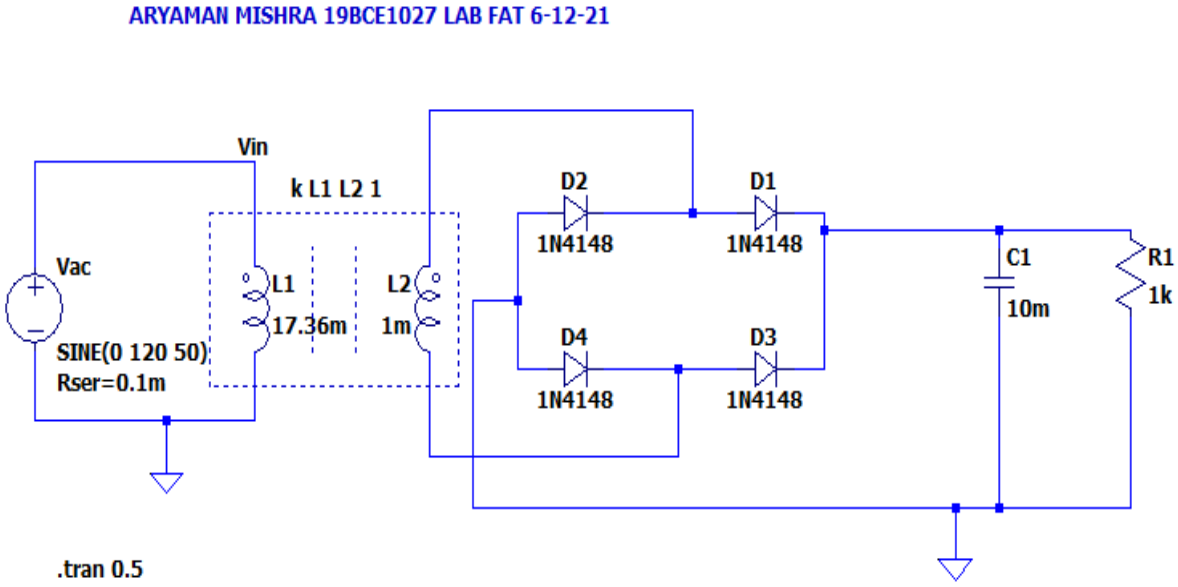
For an input sinusoidal voltage of 120V(peak), obtain a full wave rectified output voltage with a peak value of 28.8V. Obtain the turns ratio of the transformer to be used in the circuit. Note: Use 1N4148 diodes.

Software used: LTSpice

Components required: Resistors, voltage source, inductors, diode.

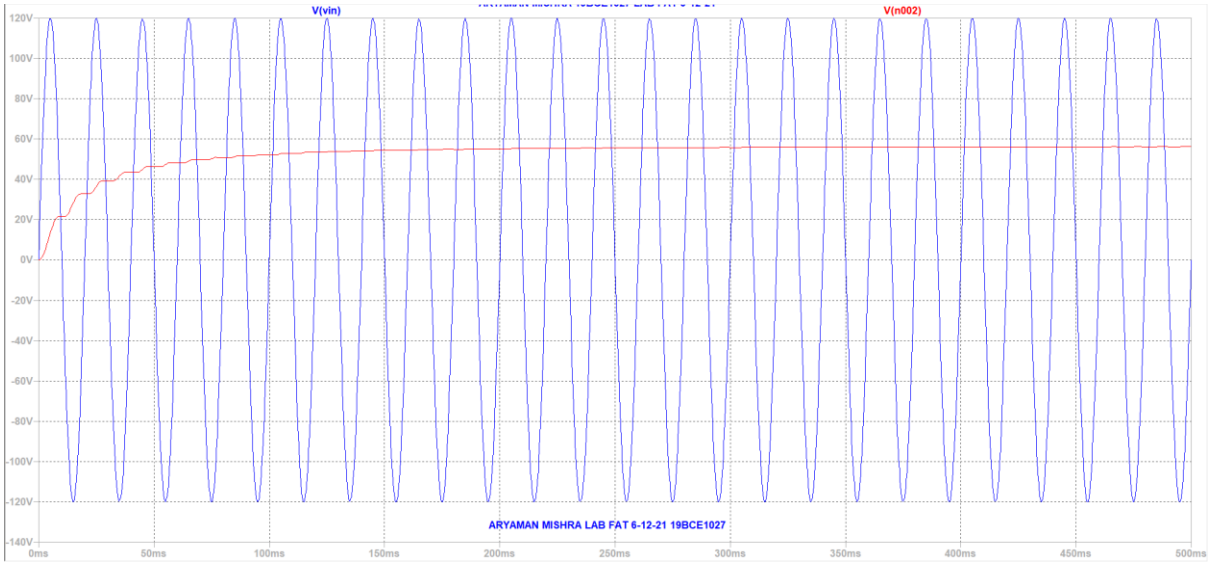
Circuit:

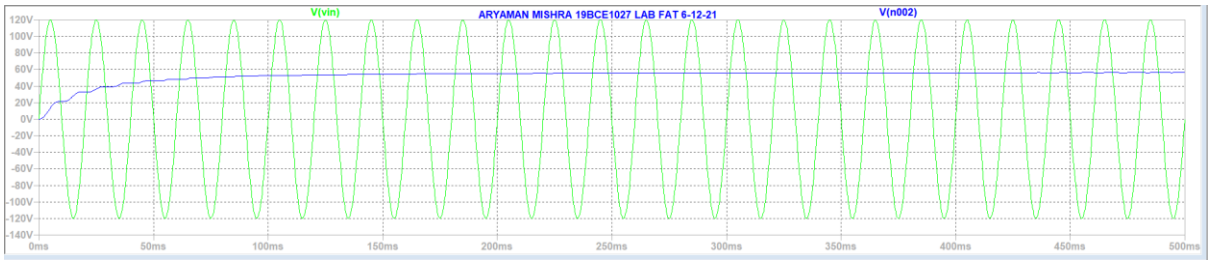




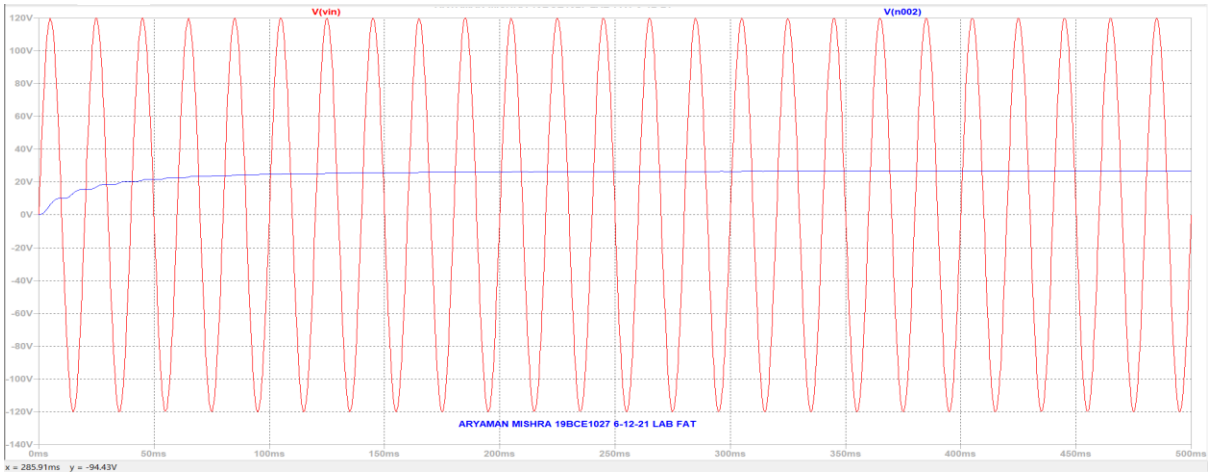
Output:

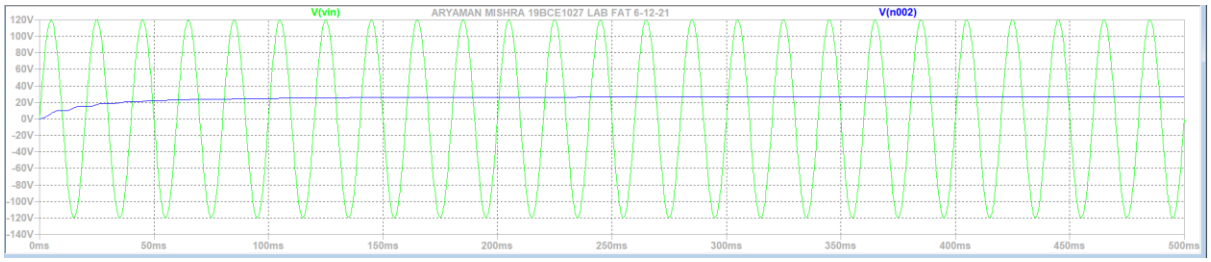
Taking voltage and number of turns only:





Taking inductance as factor:





Taking Voltage and Number of Turns:

Vp:Input Voltage on Primary Coil

Vs:Input Voltage on Secondary Coil

Ns:Number of Turns on Secondary Coil

Np:Number of Turns on Primary Coil

Turn Ratio Formula:(Vs/Vp)=(Ns/Np)

Turn Ratio=120/28.8=4.16

Therefore:Turn Ratio=4.16:1

Taking Inductance as factor:

L1:L2=(v1*v1)/(v2*v2)

L1:L2=(120*120)/(28.8*28.8)=17.36:1

Conclusion: On taking L1:L2 as 17.36:1,the threshold voltage peaks at 28.8V.Thus experiment is successfully completed.