Circuit Done By:- K.Mohamed Abdullah

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Theory:-

In this a 3-phase bridge type VSI with square wave pole voltages has been considered. The output from this inverter is to be fed to a 3-phase balanced load. This circuit may be identified as three single-phase half-bridge inverter circuits put across the same dc bus. The individual pole voltages of the 3-phase bridge circuit are identical to the square pole voltages output by single- phase half bridge or full bridge circuits. The three pole voltages of the 3-phase square wave inverter are shifted in time by one third of the output time period.the phase sequence of the pole voltages is taken as V_{AO}, V_{BO} and V_{CO}. The numbering of the switches in Fig. has some special significance vis-à-vis the output phase sequence.

CIRCUIT DIAGRAM:-
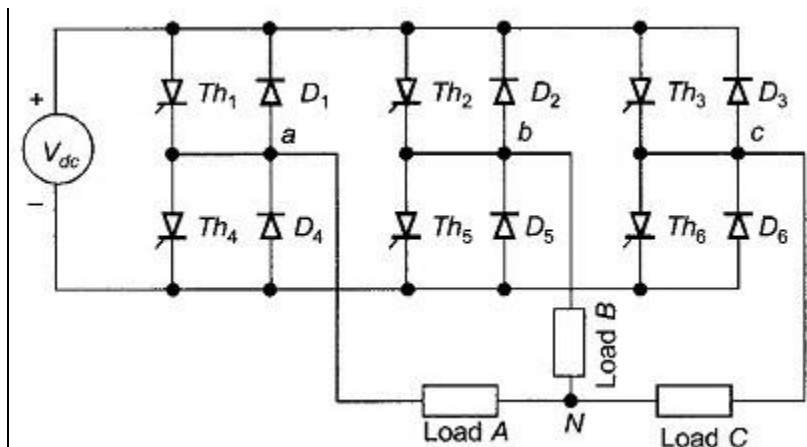
Schematic Diagram: the circuit schematic of the three phase voltage source inverter in eSim is as shown below
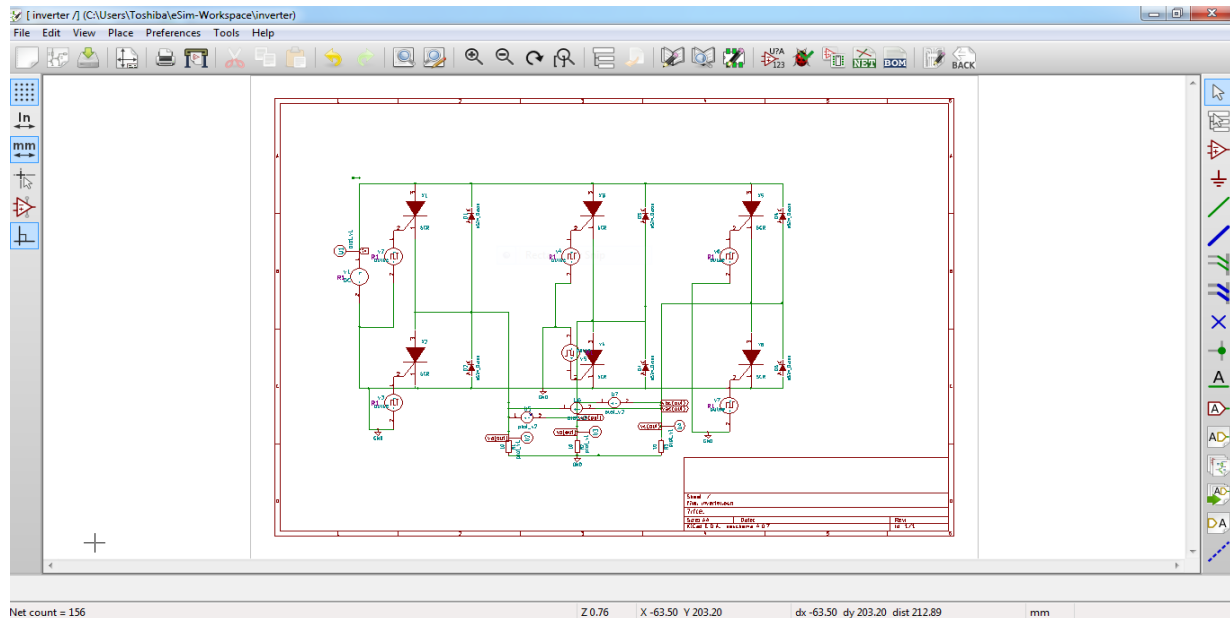

Figure 1:three phase voltage source inverter
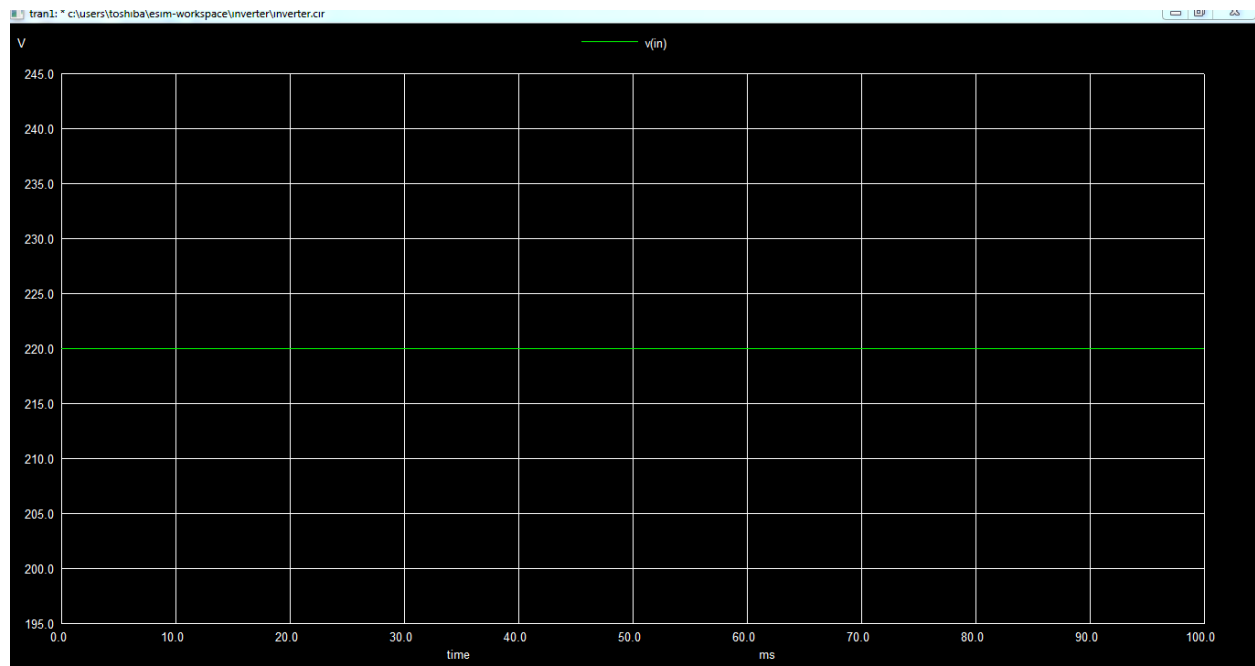
Simulation Results:-

1. Ngspice Plots

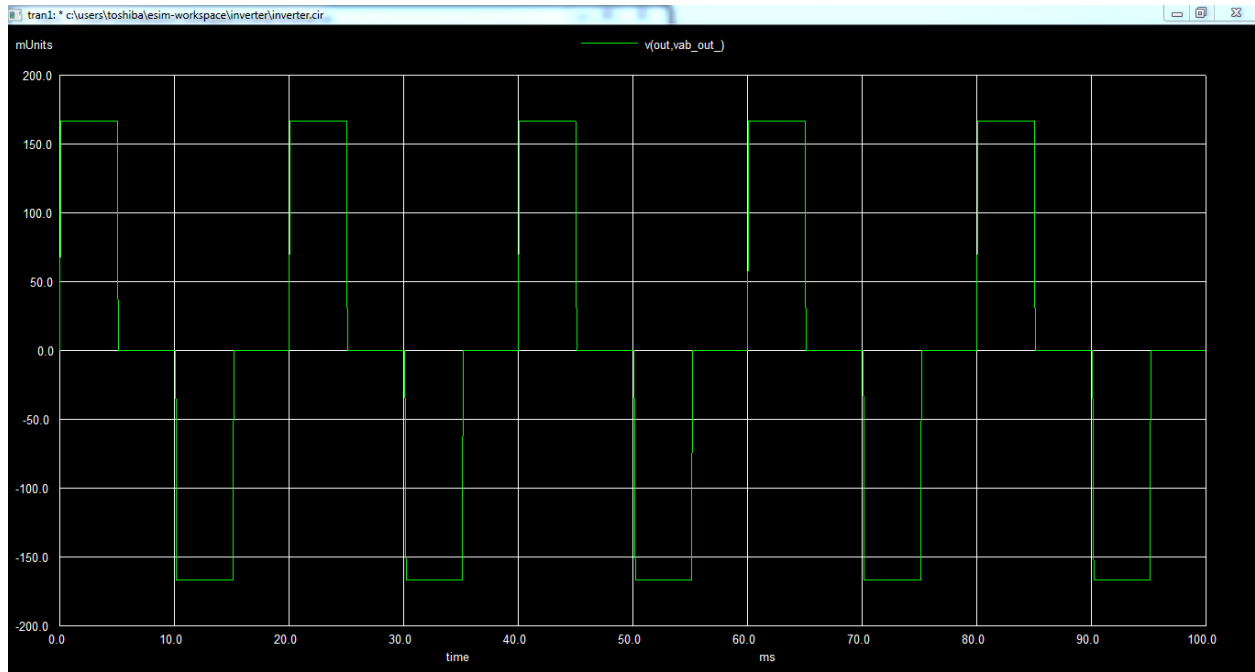**Figure 2:- input dc voltage**

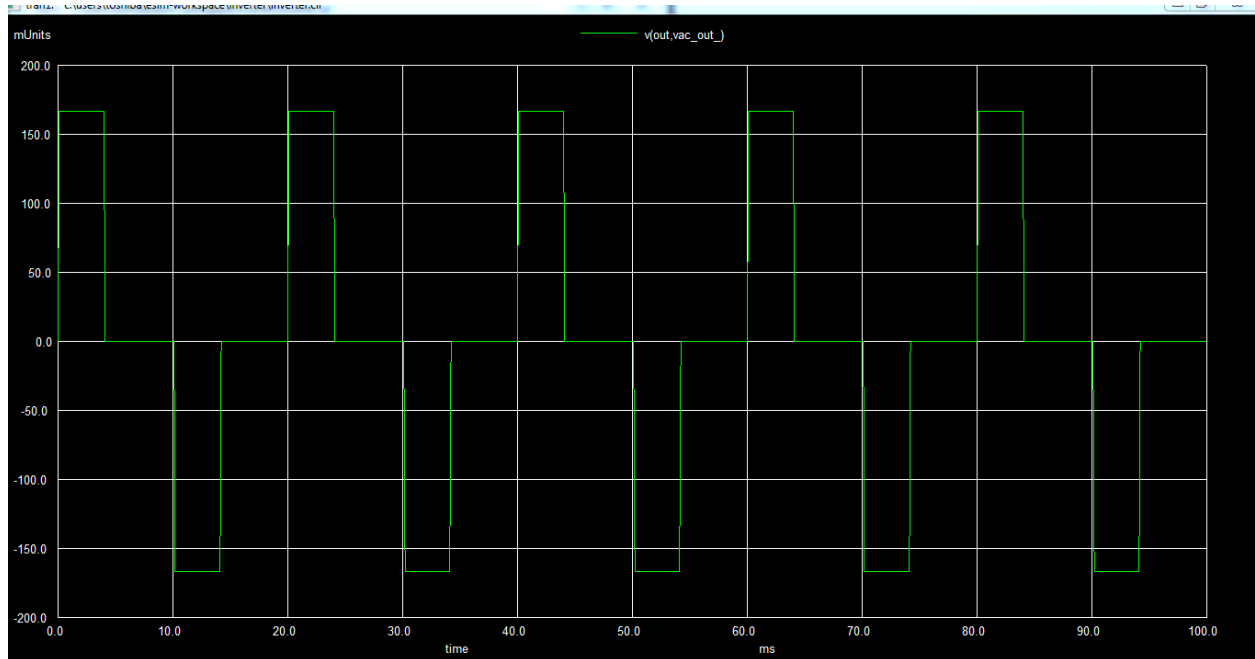**Figure 3:- Output voltage of Vab**

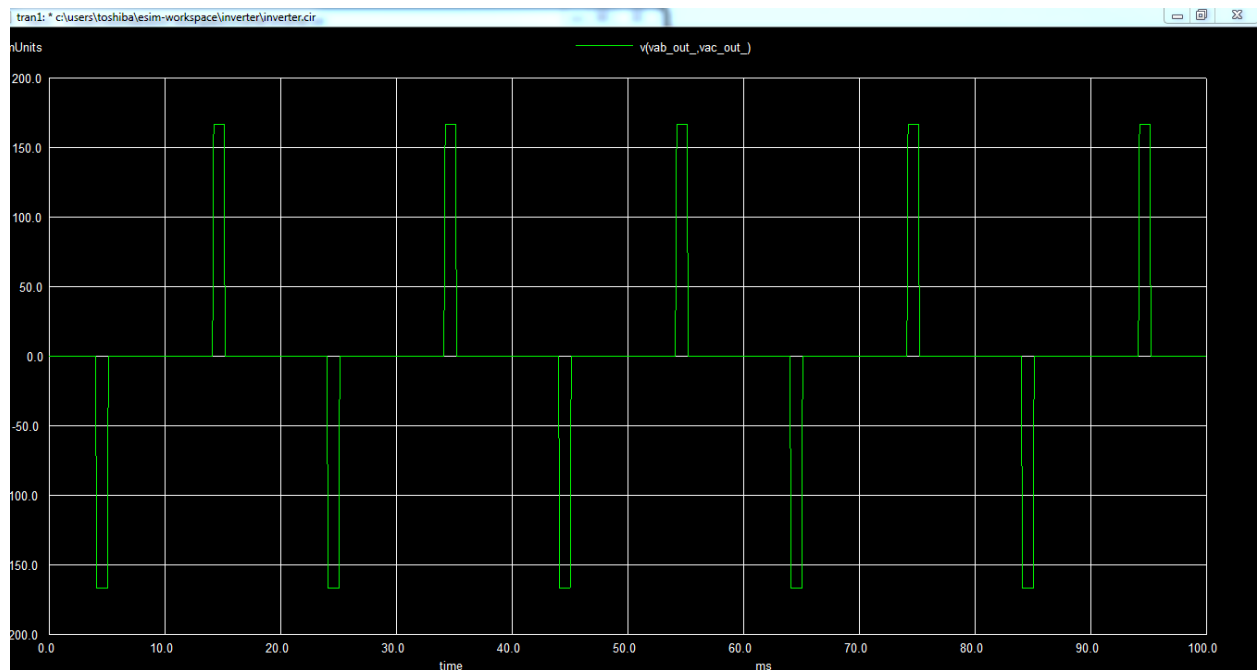**Figure 4:- Output voltage of Vac**
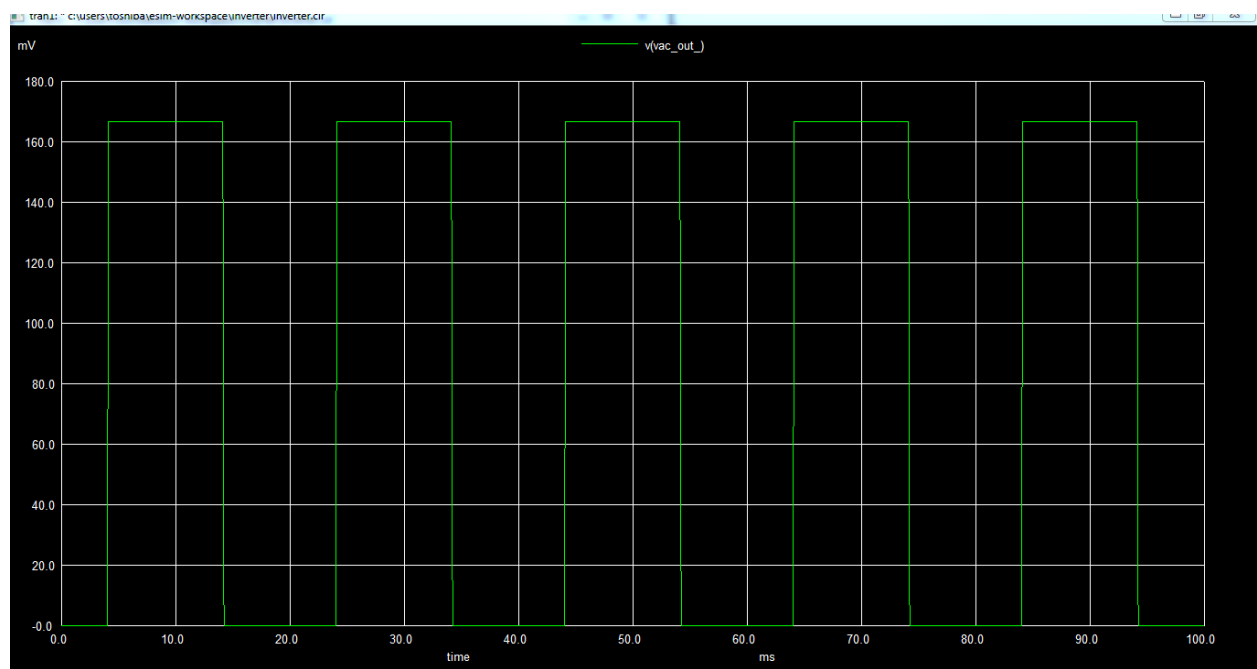
Figure 5:- Output votage of Vbc
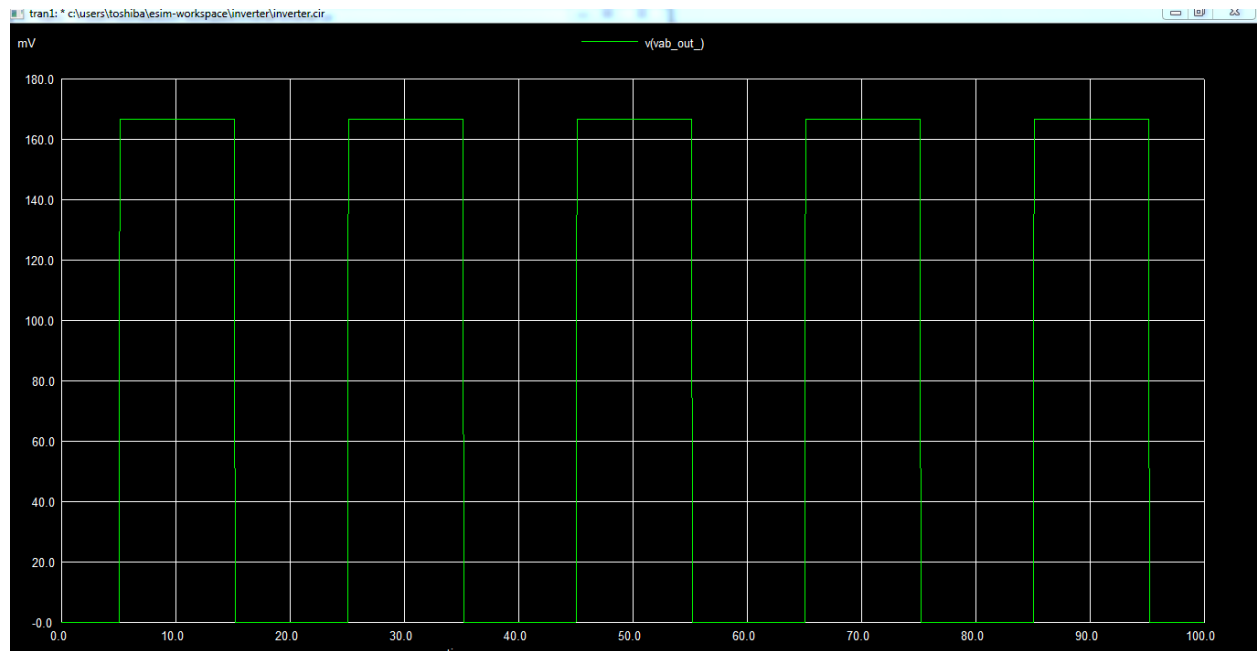

Figure 6:-Output voltage of Va

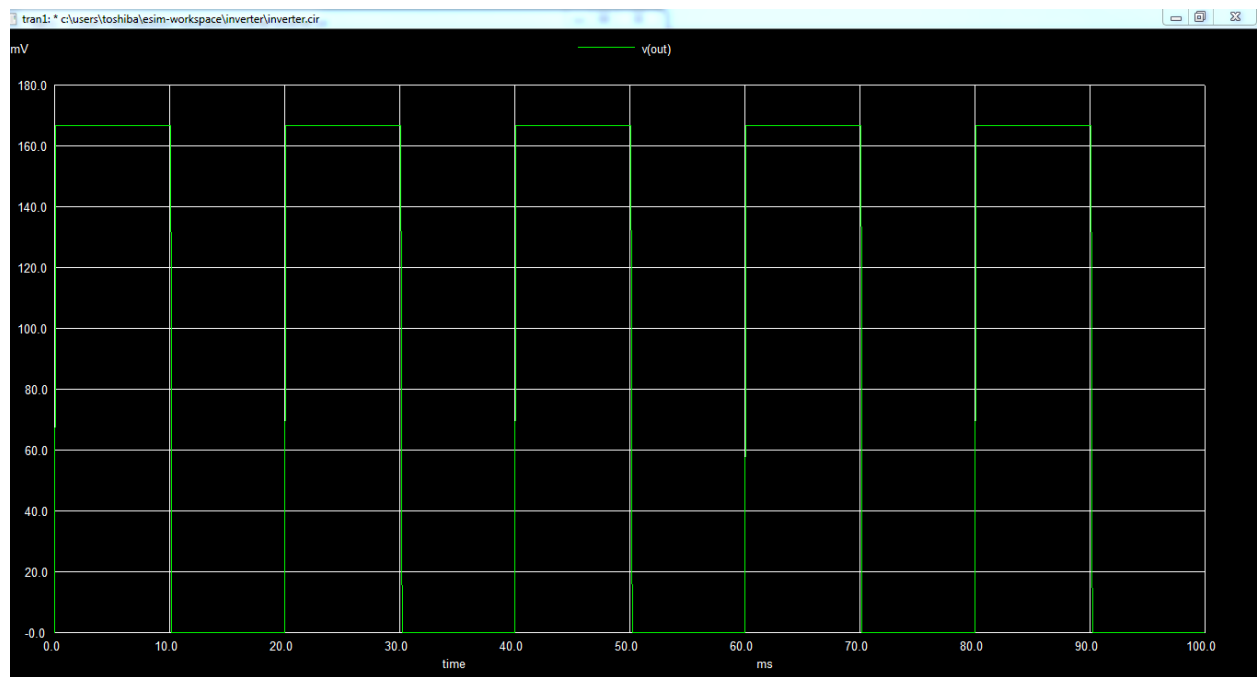**Figure 7:-Output voltage of Vb**

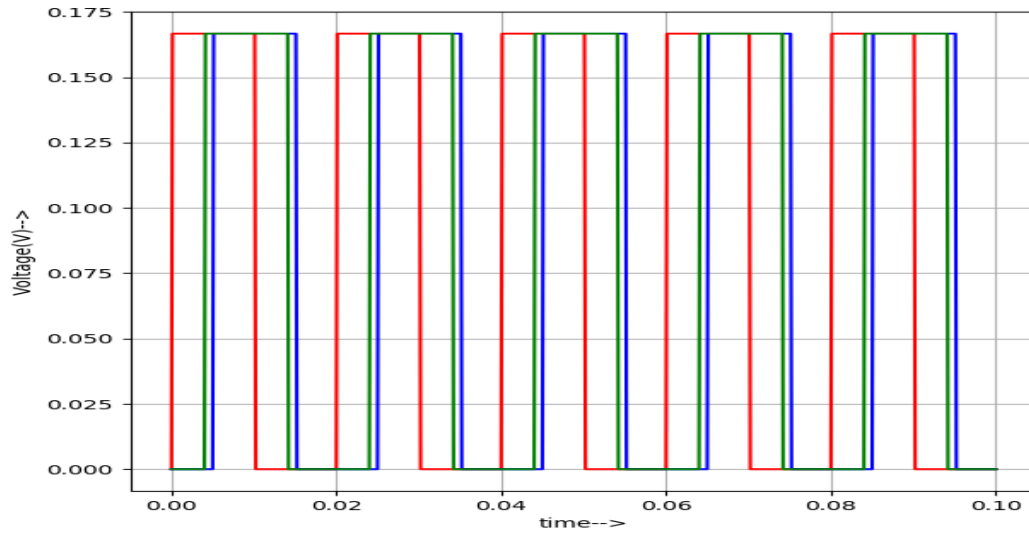**Figure 8:- Output voltage of Vc**

2. Python Plots:

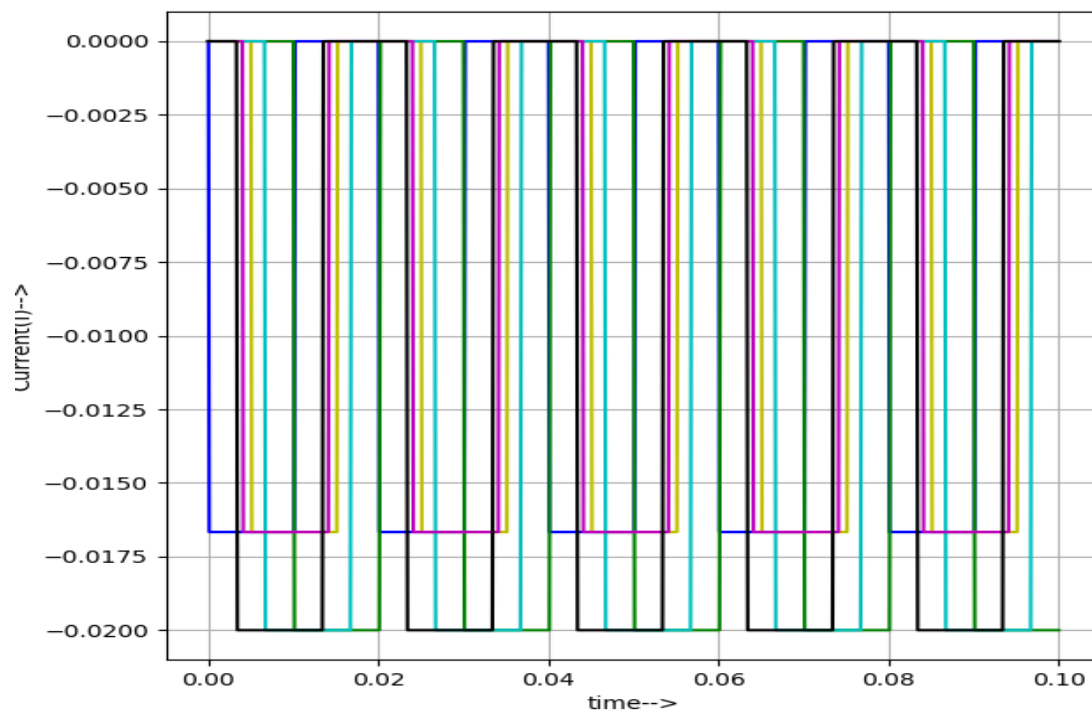

Figure 9:- python plot of combined Va,Vb,Vc vs time

Figure 10:-python plot of combined Iab,Ibc,Ica vs time

References :

https://www.sciencedirect.com/science/article/pii/B9780128117989000068