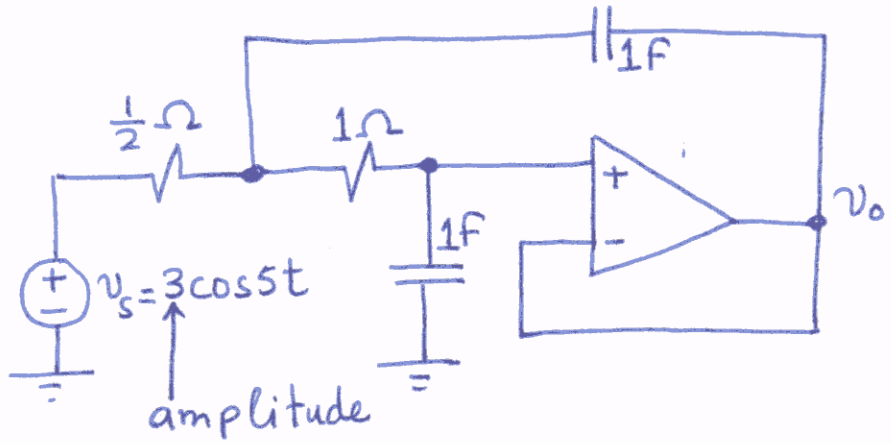
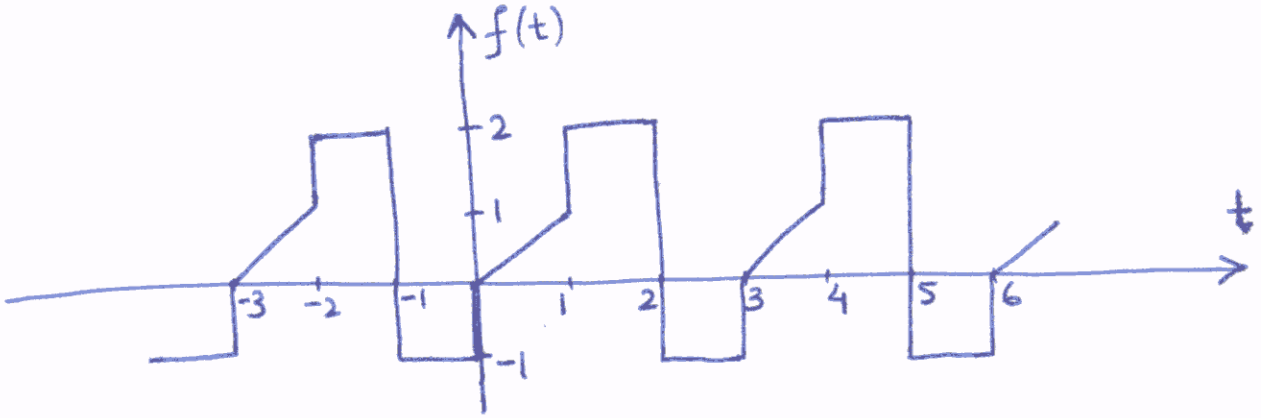
Homework # 2
EE201 (032)
Instructor: Noman Ali Tasadduq

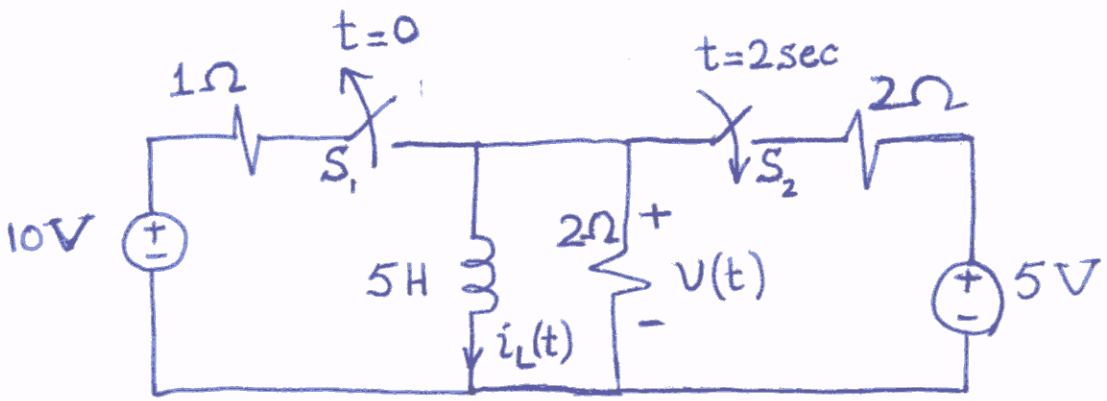
Q1. In the op amp circuit shown in the figure below, find
(a) $v_o(t)$ and
(b) the impedance seen by the voltage source



Q2. Find the rms value of the function shown in the figure below



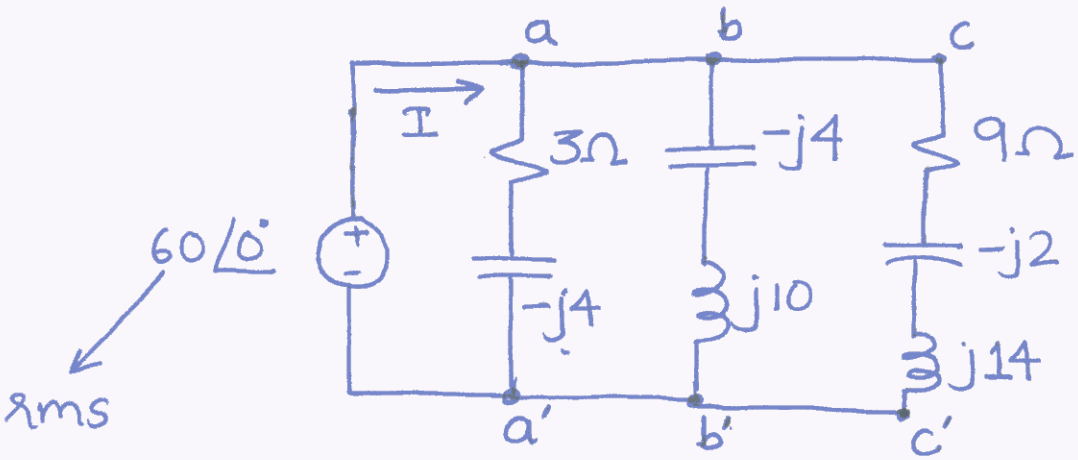
Q3. The switch S1 is closed for a long time and is opened at t = 0sec. Similarly the switch S2 is open for a long time and is closed at t = 2 sec. Determine
(a) $i_L(t)$ for all time
(b) v(t) for all time



Q4. For the network

(a) Find complex power (S), average power (P), reactive power (Q) and power factor for each branch (a-a′, b-b′, c-c′).

(b) Find the total current 'I' and total power factor. Indicate if it is capacitive or inductive.



Q5. A small industrial plant has a 10kW purely resistive heating load and a 20kVA inductive load of motor having a lagging power factor of 0.7. The loads are connected in parallel to a supply voltage of $1000\angle 0°$ (rms) at 60Hz.

(a) Find the total current drawn from the supply

(b) Determine the value of capacitor required to raise the power factor at input to 0.95.