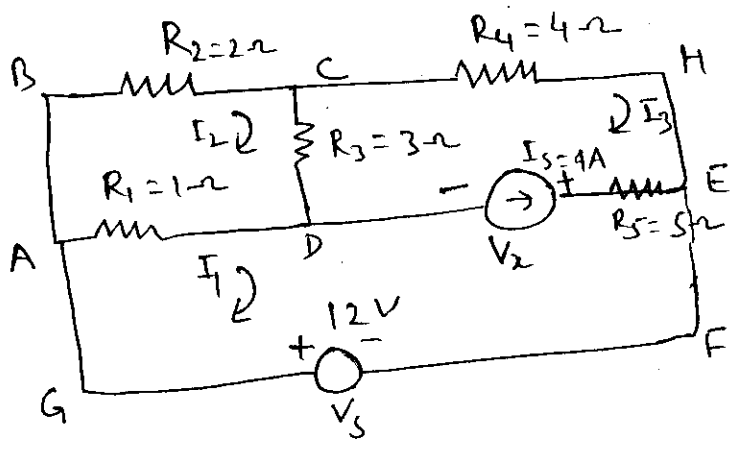


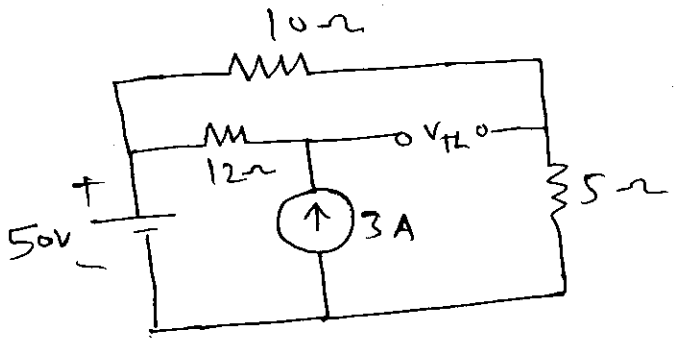
Part B

Q1 Find the current I_1 , I_2 and I_3 for the given ckt.

(a) Using mesh analysis

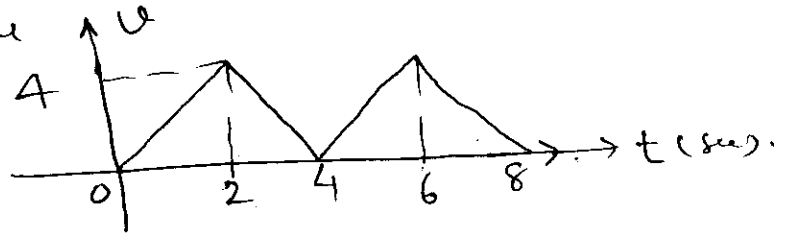


(b) Find the current through 2Ω resistance using Thevenin's Theorem.



Q2 (a) A coil is connected in series with non inductive resistance of 30Ω across 240V, 50 Hz supply. The reading of voltmeter across the coil is 180V and across the resistance is 130V. Find the power absorbed by the coil (ii) inductance of the coil (iii) resistance of the coil (iv) power factor of the whole ckt

(b) For the wave shown in fig find average value r.m.s value



Q3(a) Three identical coils each having a resistance of $10\ \Omega$ and reactance of $10\ \Omega$ are connected in star (i) delta across 400V 3ϕ supply. Find in each case the line current and reading of each of the two wattmeter connected to measure the power

(b) A single phase energy meter has constant speed of 1300 rev/kWh . The disc revolves at 3.5 r.p.m when a load of 150 kW is connected to it. If load is on for 11 hrs . Find how many units are recorded as error.

Q4 (a) The no load current of transformer is 3 A at Pf of 0.25 when supplied at 230V , 50 Hz supply. The no of turns on the primary are 300 . Find
1) max^m value of flux in the core (ii) Core loss (iii) magnetising current.

(b) The Iron loss and full load Cu loss of 100 kVA $6600/400\text{ V}$ single phase xer are 600 W and 900 W . Find the η at full load and half load at 0.8 Pf lag . Find the load at which ~~it is~~ maximum η occurs.

Q5 ~~Rectangular mag.~~

(a) A 4 pole DC shunt generator with wave wound armature has 40 slots each having 12 conductors. Armature resistance is $1\ \Omega$ and shunt field resistance is $200\ \Omega$. The flux per pole is 25 mwb . If a load of $50\ \Omega$ is connected across the armature terminals, find the voltage across the load when gen is driven at 1000 r.p.m . What will be the load voltage if gen is lap wound.

Q 5 (b) A shunt generator delivers 50 kW at 250 V when running at 400 r.p.m. The armature and field resistance are 0.02Ω and 50Ω respectively. Find the speed of m/c when running as shunt motor and taking 50 kW input at 250 V. Neglect brush contact drop.

Q (6) A 3ϕ 4 pole induction motor is supplied from 3ϕ 50 Hz ac supply. Find

- i) synchronous speed ii) rotor speed when slip is 4%
 iii) The rotor frequency when rotor runs at 600 r.p.m.
- _____ x _____ x _____ x _____ x _____