Code No: R1621021 **R16** SET - 1

**II B. Tech I Semester Supplementary Examinations, May - 2018**
**ELECTRICAL CIRCUIT ANALYSIS-II**
(Electrical and Electronics Engineering)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
2. Answer **ALL** the question in **Part-A**
3. Answer any **FOUR** Questions from **Part-B**

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## PART –A

1. a) Draw the circuit diagram that measures the three phase power using two wattmeter method. (2M)
   b) How do you convert to unbalanced star to unbalanced delta system (2M)
   c) Define time constant and write its significance. (2M)
   d) Define symmetrical property in two port networks and write the same for h, z, y parameters. (3M)
   e) Write short notes on R-L impedance functions (2M)
   f) What is the difference between Fourier integrals and Fourier transforms. (3M)

## PART –B

2. a) Each phase of a balanced three phase delta connected load has a 0.5 Henry inductor in series with a parallel combination of a 7 μF capacitor and 50 Ω resistances. If a 3-phase voltage of 230 V at a frequency of 400 rad/sec is applied to this load, find i) phase current ii) line current and iii) total power absorbed by the load (9M)
   b) Show that power consumed by three identical phase loads connected in delta is equal to three times power consumed when phase loads are connected in star. (5M)

3. a) An impedance of 80 ohm in RY phase, a reactance of 100 ohm and negligible resistance in YB phase, a capacitive reactance of 160 ohm in the phase BR is connected in the form of delta to a 3 phase supply of 400 V. Assume the phase sequence to be RYB. Calculate phase currents as well as line currents (7M)
   b) A balanced star connected three phase generator with phase voltage 200V supplies an unbalanced star connected load with impedances (7 + 5j), (4 – 9j), (8 – 6j). Determine the total complex power (7M)
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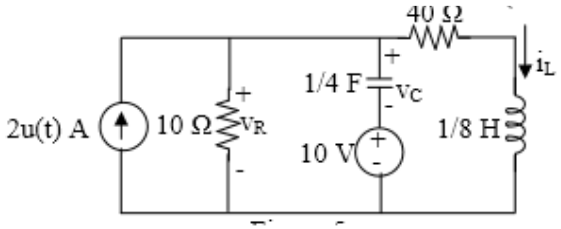
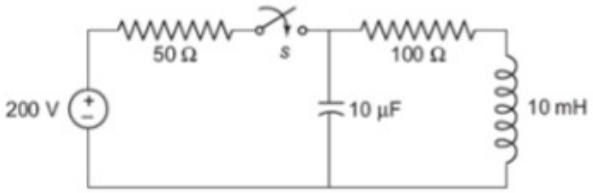
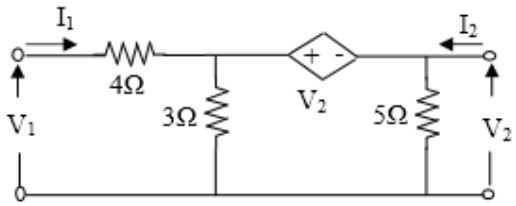
4. a) For the circuit shown in figure 5, calculate (i) $i_{L(0+)}$, $v_{C(0+)}$, and $v_{R(0+)}$, (ii) $i_{L(\infty)}$, $v_{C(\infty)}$, and $v_{R(\infty)}$. (7M)



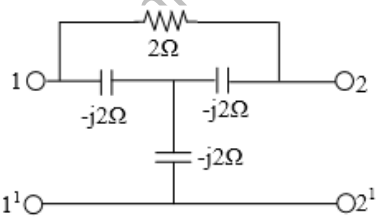

b) When the switch is closed at t = 0, find the transient currents across inductor for the network shown in below Figure. Assume that initial current across the inductor is zero. (7M)




5. a) Find Y and Z parameters of the network shown (9M)




b) Find y parameters for the circuit shown (5M)




6. a) Explain in detail about the Cauer method of network synthesis (7M)

b) Test whether F(S)=(S+8)(S+2)/(S+4)(S+6) is positive real function. (7M)

7. a) Find the Fourier transform of a gate function and draw its magnitude and phase spectrum (7M)

b) Determine the voltage across the 2 Ω resistor, by the Fourier transform method, if the circuit shown in Figure, is excited by a current source $i_S$ (t) = 50 cos(5t) A. Show that the result so obtained is the steady state response of the circuit. (7M)