Code No: RT21021 **R13** SET - 1

II B. Tech I Semester Supplementary Examinations, May/June - 2017
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 **THREE** Questions from **Part-B**

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PART –A

1. a) What do you mean by a balanced three phase voltages. (3M)
   b) Explain the term active power, reactive power and power factor. (4M)
   c) Explain the time constant of R-L and R-C circuits. (4M)
   d) Write the symmetry and reciprocity conditions for transmission parameters and h-parameters. (3M)
   e) Check whether $Z(s)=\frac{(4s+1)}{(s+2)}$ is a positive real function or not (4M)
   f) List the properties of Fourier Analysis. (4M)

PART –B

2. a) Explain in detail about a balanced Delta –Delta connection and Star – Star connection. (8M)
   b) A positive sequence, balanced delta connected source supplies a balanced delta connected load. If the impedance per phase of the load is (18 +j12) Ω and $I_a = 22.5 \angle 35^0$, Find I_{AB}, V_{AB}, total active and reactive power. (8M)

3. a) Explain how power can be measured in a three phase unbalanced system. (8M)
   b) A balanced 3- phase, 3-wire 50 Hz, 100 V supply is given to a load consisting of three impedances (1+j1), (1+j2), (3+j4) ohms connected in star. Compute the line and phase voltages and also currents. (8M)

4. a) Obtain the expression for current in an R-L series circuit when it is excited with step voltage. (8M)
   b) Find the current in a series R – L circuit having the resistance of 2Ω and inductance of 10 H while a dc voltage of 100 V is applied. What is the value of current in the circuit after 5 seconds. (8M)
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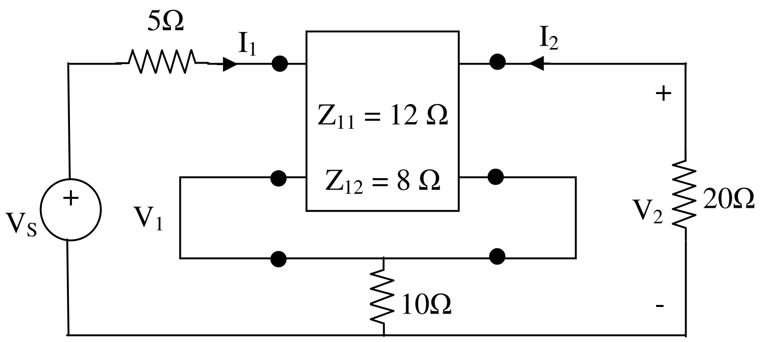
5. Evaluate V_2 / V_s for the circuit shown below (16M)



6. A driving point impedance is given by (16M)

$$Z_{LC}(s) = \frac{s(s^2+4)(s^2+6)}{(s^2+1)\ (s^2+5)}$$

Obtain the first Cauer form of the network.

7. Find $V_0(t)$ in the circuit shown below for $V_i(t) = 2\ e^{-3t}\ u(t)$ using Fourier transform. (16M)