Q.P. Code: 16EE203 **R16**

Reg. No: | | | | | | | | | | |

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech II Year I Semester Supplementary Examinations November-2020

NETWORK ANALYSIS & SYNTHESIS

(Electrical & Electronics Engineering)

Time: 3 hours Max. Marks: 60

(Answer all Five Units **5 x 12 = 60** Marks)

UNIT-I

1 An unbalanced 4 wire star connected load has a balanced voltage of 400V. The load are Z_1= (4+j8) Ω , Z_2= (5+j4)Ω , Z_3= (15+j20)Ω. Calculate line currents, current in neutral wire, total power. **12M**

OR

2 A balanced delta connected load of (4+j3) Ω per phase is connected to a balanced 3Ø, 440V supply. Find i) active power ii) reactive power iii) Apparent power. **12M**

UNIT-II

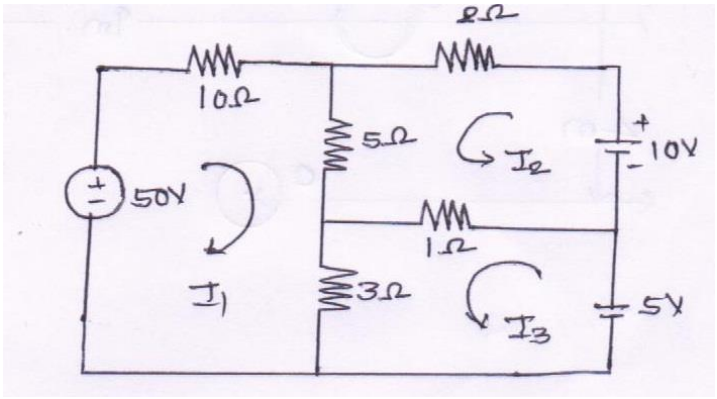
3 A series RL circuit with R=30Ω and L=15H has a constant voltage V=60V applied at t=0. Determine the current I, the voltage across the resistor and across the inductor. **12M**

OR

4 Derive the transient response of a RC circuit with AC excitation. **12M**

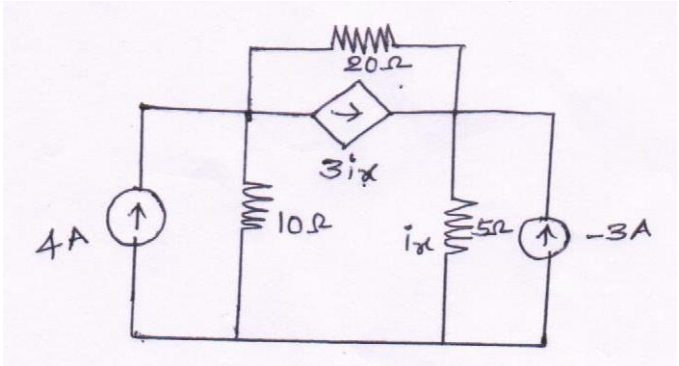
UNIT-III

5 Determine mesh currents for the following network using network topology. **12M**



OR

6 Determine i_x for the following network using network topology. **12M**



UNIT-IV

7 Prove the g parameters can be obtained from the z parameters as **12M**

$$g_{11} = \frac{1}{z_{11}} \qquad g_{12} = \frac{-z_{12}}{z_{11}} \qquad g_{21} = \frac{z_{21}}{z_{11}} \qquad g_{22} = \frac{\Delta_z}{z_{11}}$$

OR

8 Derive the expressions for Y-parameters in terms of ABCD parameters. **12M**

UNIT-V

9 Explain about constant K low pass filter. **12M**

OR

10 Design a low pass filter having cut of frequency of 5KHz with load resistance of 800 ohms. **12M**

*** END ***