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**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR**  
(AUTONOMOUS)

**B.Tech II Year I Semester Supplementary Examinations Nov/Dec 2019**

**NETWORK ANALYSIS SYNTHESIS**  
**(Electrical & Electronics Engineering)**

Time: 3 hours

Max. Marks: 60

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

**UNIT-I**

- 1 a A balanced star connected load having an impedance  $(15+j20) \Omega$  per phase is connected to a three phase 440 V, 50Hz supply. Find line currents and phase voltages. Assume RYB phase sequence and also calculate power drawn by the load. **6M**
- b Derive the relationship of voltage and current in delta connected load. **6M**

**OR**

- 2 a Derive the relationship of voltage and current in star connected load. **6M**
- b An unbalanced 4 wire star connected load has a balanced voltage of 400V. The load are  $Z_1=(4+j8) \Omega$ ,  $Z_2=(5+j4)\Omega$ ,  $Z_3=(15+j20)\Omega$ . Calculate line currents, current in neutral wire, total power. **6M**

**UNIT-II**

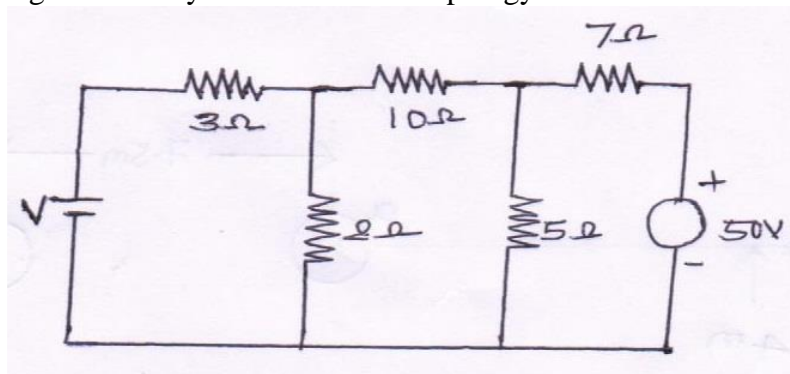
- 3 Derive the transient response of an RLC circuit with sinusoidal excitation **12M**

**OR**

- 4 Derive the transient response of an RLC circuit with DC excitation **12M**

**UNIT-III**

- 5 Find voltage V for the circuit shown in fig which makes the current in the  $10\Omega$  resistor is zero by using nodal analysis with network topology? **12M**

**OR**

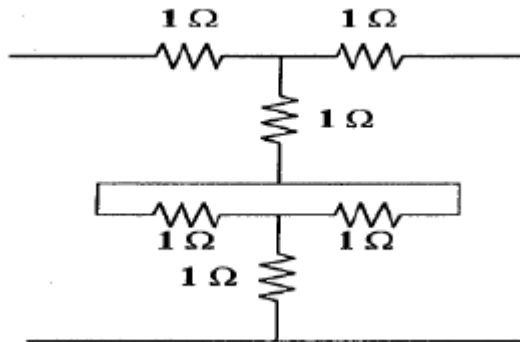
- 6 Define the following: **12M**  
i) graph ii) planar and non-planar graph iii) Duality iv) Cut set v) Tieset.

**UNIT-IV**

7 Derive the expressions for Y-parameters in terms of ABCD parameters? **12M**

**OR**

8 Determine the Z parameters of the following two port network. **12M**

**UNIT-V**

9 Design a  $\pi$  type attenuator to give 10 dB attenuation and to have a characteristic impedance of 200 Ohms. **12M**

**OR**

10 Design a K-type band pass filter having cut off frequency of 2KHz & 10 KHz and with load resistance of 500 ohms **12M**

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