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

**B.Tech II Year I Semester Regular Examinations Feb-2021**

**ELECTRICAL CIRCUITS-II**

**(Electrical & Electronics Engineering)**

Time: 3 hours

Max. Marks: 60

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

**UNIT-I**

- 1 Derive the relationship between Phase and Line voltages, currents in star connected load. 12M

OR

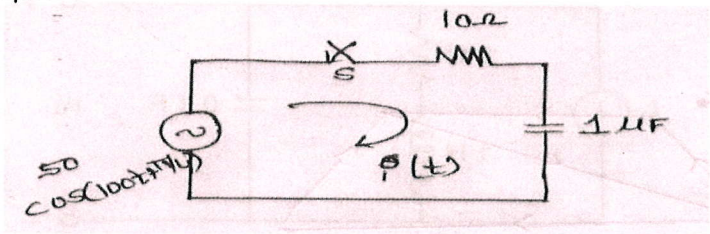
- 2 A balanced star connected load of  $(4+j3) \Omega$  per phase is connected to a balanced  $3\phi$ , 400 Volts supply. Find i) active power ii) reactive power and iii) Apparent power. 12M

**UNIT-II**

- 3 Derive the transient response of an RL series circuit with dc excitation. 12M

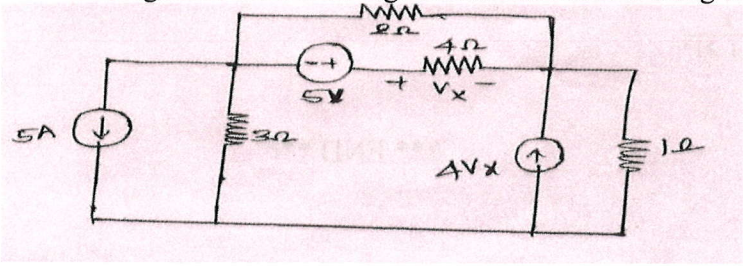
OR

- 4 In the circuit shown below, Determine the complete solution for the current when switch is closed at  $t=0$ . Applied voltage is  $V(t)=50\cos(100t+\pi/4)$ , resistance,  $R=10\Omega$  and capacitance  $C=1\mu F$ . 12M



**UNIT-III**

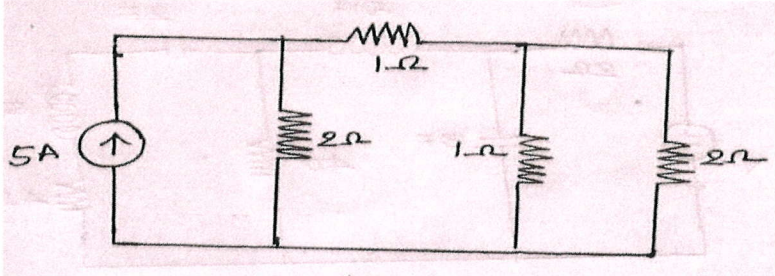
- 5 For the circuit shown in figure. Find the voltage across  $4\Omega$  resistor using nodal analysis. 12M



OR

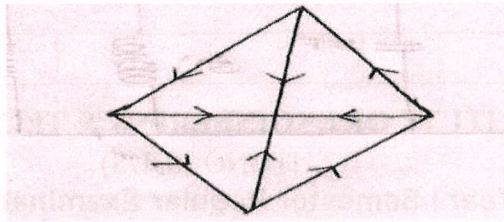
- 6 Find the cutset matrix for the following circuits.

a



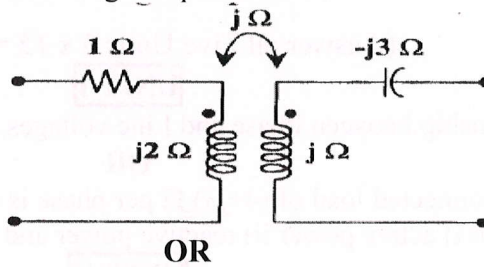
6M

b



**UNIT-IV**

7 Obtain the T parameters of the following two port network. 12M

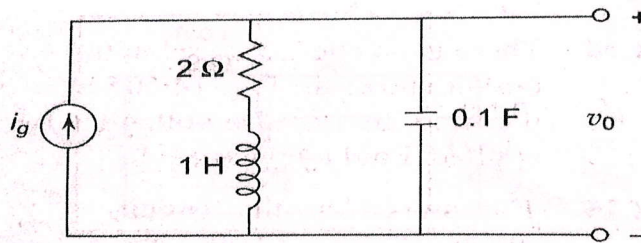


OR

8 Derive the expressions for hybrid parameters of a two port network. 12M

**UNIT-V**

9 Derive the numerical expression for the transfer function  $V_o/I_g$  for the circuit shown below. 12M



OR

10 a Derive Laplace transform of all standard signals. 6M

b Find the inverse Laplace transform of the following function F(s). 6M

$$F(s) = \frac{1}{(s+2)^2}$$

\*\*\* END \*\*\*