

B. Tech I Year (R07) Supplementary Examinations, November/December 2011

NETWORK ANALYSIS

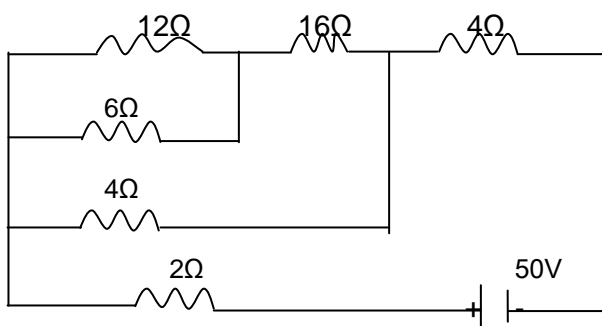
(Common to Electronics & Communication Engineering, Electronic & Instrumentation Engineering,
Electronics & Control Engineering & Electronics & Computer Engineering)

Time: 3 hours

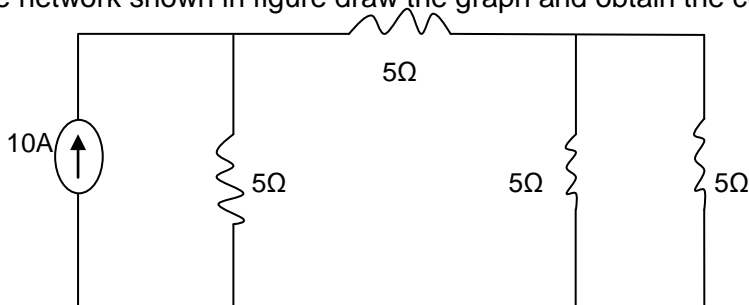
Max Marks: 80

Answer any FIVE questions
All questions carry equal marks

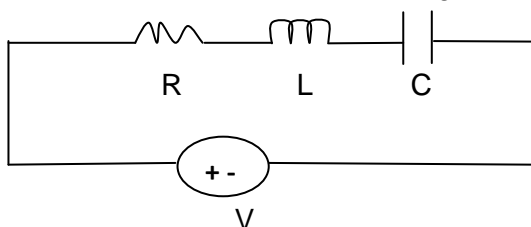
- 1 (a) Explain source transformation with example.
(b) For the circuits shown in figure, calculate total resistance, total current and also total power dissipated.



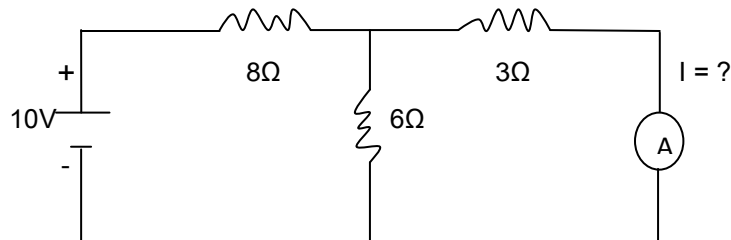
- 2 (a) Derive the expression for coefficient of coupling.
(b) A metal filament lamp rated at 750 W, 100 V is to be connected in series with a capacitor across a 230 V, 60 Hz supply. Calculate:
(i) Capacitance required.
(ii) The phase angle between supply voltage and current.
- 3 A balanced 3 phase star connected load of 150 kW takes a leading current of 100 A with line voltage of 1100 V, 50 Hz. Find the circuit constant of the load per phase.
- 4 (a) For the network shown in figure draw the graph and obtain the cut-set matrix.



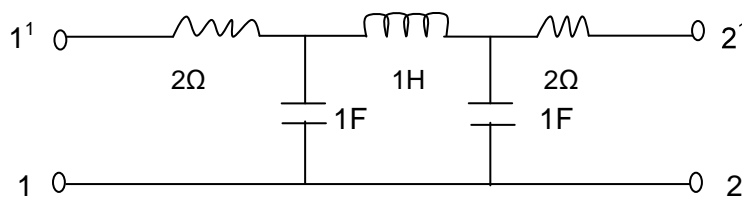
- (b) Construct the dual of the network shown in figure.



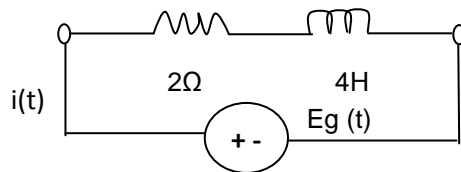
- 5 (a) State and explain Thevenin's theorem.
 (b) Find the current through ammeter shown in figure and verify reciprocity theorem.



- 6 Find the hybrid and Y – parameters for the network shown in figure.



- 7 In the circuit shown in figure $E_g(t) = 2.5t$ V, what are the values of $i(t)$ and $V_L(t)$ at $t = 4$ sec.



- 8 Design a m-derived low pass filter having cut-off frequency of 1 kHz, design impedance 400 ohms and resonant frequency of 1100 Hz.
