

Duration: 3hrs

[Max Marks:80]

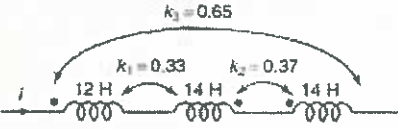
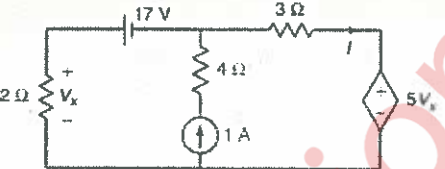
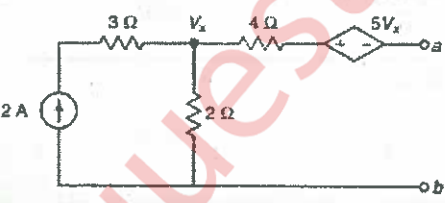
N.B.: (1) Question No 1 is Compulsory.

(2) Attempt any three questions out of the remaining five.

(3) All questions carry equal marks.

(4) Assume suitable data, if required and state it clearly.

QP-10038386

1	Attempt any FOUR	[20]
a	Define the Maximum Power Transfer Theorem and prove that Source resistance is equal to load resistance for maximum power transfer.	[05]
b	Find the Inverse Laplace of $\frac{S+2}{S(S+1)(S+3)}$	[05]
c	Find the Equivalent Inductance of the network shown in figure 	[05]
d	Write the properties of Hurwitz Polynomial real function	[05]
e	Explain constant K filters.	[05]
2	a Find the current I in the given network by the superposition theorem 	[10]
b	Find Vth and Rth between terminals A and B 	[10]
3	a In the network shown in the figure the switch is changed from position 1 to position 2 at t = 0. Steady state condition have reached before switching. Find the values of I, di/dt and d ² i/dt ² at t = 0 ⁺	[10]

	b	<p>Determine the current $i(t)$ for the network shown in figure when the switch is closed at $t = 0$</p>	[10]
4	a	<p>For the network shown in Figure determine V_2/V_1 and plot the pole zero diagram for it</p>	[10]
	b	<p>Obtain Y parameters for the given figure</p>	[10]
5	a	<p>Test whether following function is positive real or not?</p> $\frac{2s^3 + 2s^2 + 3s + 2}{s^2 + 1}$	[10]
	b	<p>Realize the Fosters Form of the given function</p> $Z(S) = \frac{(s^2+1)(s^2+3)}{s(s^2+2)}$	[10]
6	a	<p>Design a constant K high pass filter for the given T section having a cut off frequency of 10KHz and design impedance of 600 Ω. Find the characteristic impedance and phase constant at 25KHz</p>	[10]

b	Find the voltage across 5Ω resistor using mesh analysis	[10]
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