6. Determine the Fourier series expression of the waveform shown in figure 10.

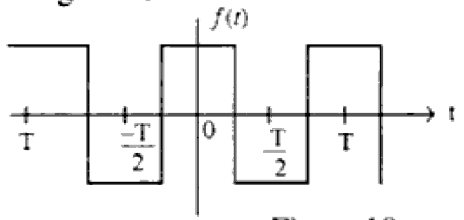

Figure 10

7. a) Determine the Z-parameters for the network shown in figure 11.

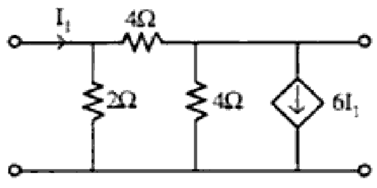

Figure 11

b) Determine the Y-parameters of the network shown in figure 12.

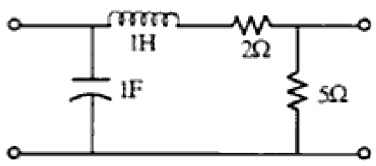

Figure 12

8. Write short notes on any two of the following :

a) Series and parallel resonance

b) Tie set schedule

c) Hybrid parameters

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Total No. of Questions :8] *[Total No. of Printed Pages : 4*

Roll No ....

EC-305

B.E. III Semester

Examination, December 2016

Network Analysis

Time : Three Hours

Maximum Marks : 70

Note: i) Attempt any five questions.

ii) All questions carry equal marks.

1. a) Draw the dual network of following circuit figure 1.

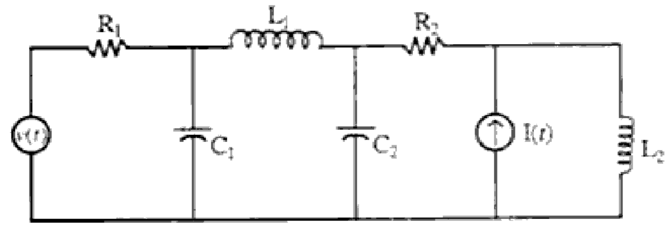

Figure 1

b) Write the loop equations of magnetically coupled circuit shown in figure 2.

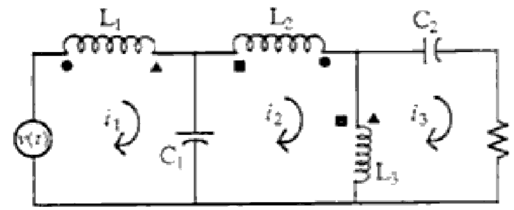

Figure 2

2. a) By superposition theorem calculate current I in the circuit shown in figure 3.

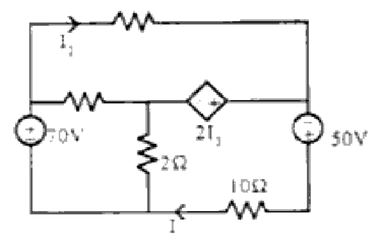

Figure 3

b) Find the Norton equivalent circuit across the terminal AB of the circuit shown in figure 4.

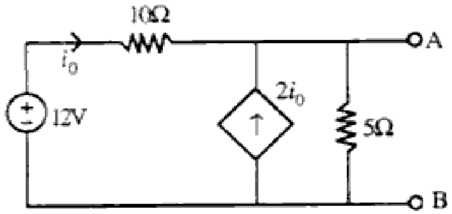

Figure 4

3. a) Calculate the current in the 6Ω resistor of the circui shown in figure 5 using Thevenine theorem.

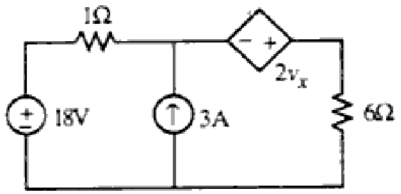

Figure 5

b) State and prove maximum power transfer theorem.

4. a) In the circuit shown in figure 6 the switch S is closed at $t = 0$ connecting a source e^{-t} to the RC circuit. At $t = 0$, it is observed that the capacitor voltage has the value $v_c(0) = 0.5$V. Determine $v_2(t)$.

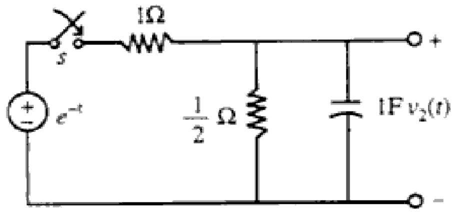

Figure 6

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b) In the circuit of figure 7, after the switch has been in the open position for a long time, it is closed at t = 0. Find the voltage across the capacitor.

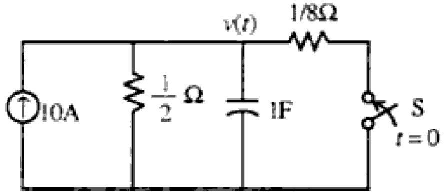

Figure 7

5. a) In the circuit of figure 8 at time t_0 after the switch S was closed, it is found that $v_2 = +5$V. It is required to determine the value of $i_2(t_0)$ and $\frac{di_2(t_0)}{dt}$.

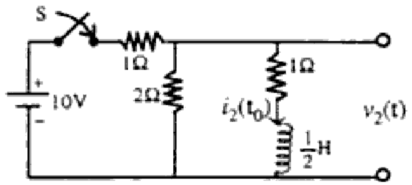

Figure 8

b) In the circuit of figure 9 the switch S is in position '*a*' for a long time. At $t = 0$ the switch is moved from '*a*' to '*b*'. Find $v_2(t)$ using numerical values given in the circuit. Assume that the initial current in 2H inductor is zero.

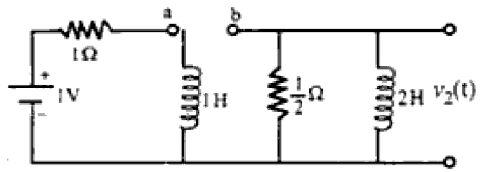

Figure 9

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