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Name of Examination : **Winter 2020** - (Preview)

Course Code & Course Name : **EE202U - Electrical Circuit Analysis**

Generated At : **19-04-2022 10:36:57**

Maximum Marks : **60**

Duration : **3 Hrs**

Edit **Print** **View Answer Key** **Close** **Answer Key Submission Type:** Marking scheme with model answers and solutions of numerical

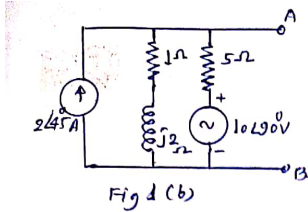
Instructions:

1. All questions are compulsory.
2. Illustrate your answer with suitable figures/sketches wherever necessary.
3. Assume suitable additional data; if required.
4. Use of logarithmic table, drawing instruments and non programmable calculators is allowed.
5. Figures to the right indicate full marks.

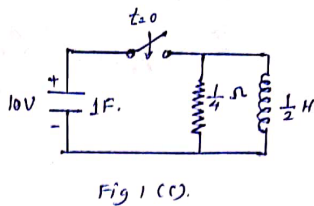
1) Solve any two sub questions

a) State and prove condition for maximum power transfer theorem for R-L in series load [6]

b) Find Thevenin's equivalent across terminals A&B for the circuit shown in fig 1(b) [6]

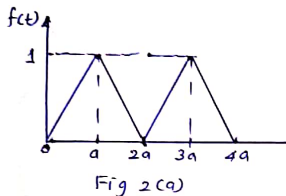


c) In a network of fig1(c) , capacitor C has an initial voltage V_0 of 10 V, and at the same instant current in inductor L is zero. The switch is closed at $t=0$. Obtain the expression for voltage $V(t)$ across the inductor [6]

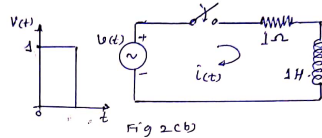


2) Attempt any two sub questions

a) Find the Laplace transform of the waveform shown in fig2(a) [6]



b) At $t=0$ unit pulse voltage of unit width is applied to a series R-L circuit as shown in fig 2(b). Obtain an expression for $i(t)$ [6]

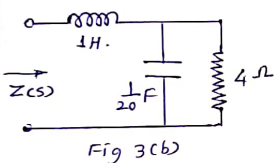


c) Write the necessary conditions for driving point function [6]

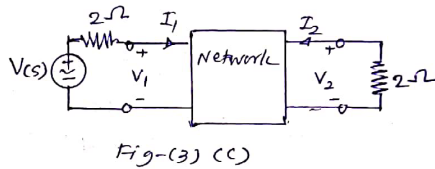
3) Solve any two sub questions

a) Obtain ABCD parameters in term of 'Z' parameter [6]

b) Determine $Z(s)$ in the network shown in fig 3(b). Find poles and zeros of $Z(s)$ and plot them on 's' plane [6]

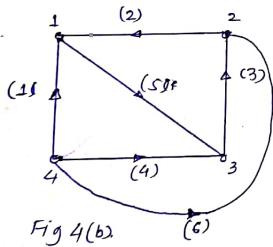


- c) The h parameters of two port network shown in fig 3© are $h_{11}=1\Omega$ $h_{12}=2$ $h_{22}=1$ mho. The power absorbed by a load resistance of 1Ω connected across port 2 is $100W$. The network is excited by a voltage source of generated voltage $V(s)$ & internal resistance 2Ω . Calculate the value of $V(s)$ [6]



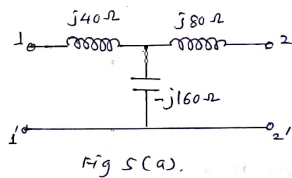
- 4) Attempt the following sub questions

- a) Define the following terms [6]
 i) Oriented graph ii) planar iii) Non-planar graph iv) Co-tree v) Tree vi) sub graph
 b) For the given graph shown in fig 4(b), write down the basic tie set matrix and taking a tree of branches 2,4,5. Write down KVL equation from the matrix [6]



- 5) Attempt the following sub questions

- a) Find 'Y' parameters of network shown in fig 5(a) from Z parameter [6]



- b) Define the principle of duality & draw the dual of the network shown in fig 5(b) [6]

