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| 2 | State Tellegen’s theorem |
| 2 | State Reciprocity theorems for D.C excitations |
| 3 | State Milliman’s and Compensation theorems for D.C excitations |
| 2 | State Thevenin’s theorems for A.C excitations |
| 5 | Find current through RL using Norton’s theorem for the circuit shown in figure |
| 2 | According to Millman’s Theorem, if there are n voltage sources with n internal resistances respectively, are in parallel, then these sources are replaced by? |
| 2 | If the source impedance is complex, then the condition for maximum power transfer is? |
| 5 | Find the current IL using Millman’s theorem |
| 5 | Maximum power transfer theorem statement and Problems for both AC and DC excitation. |
| 5 | Use Thevenin’s theorem to find current through 5 ohm resistor in the circuit shown Fig (i |
| 5 | Determine the current through 5 ohm resistor in the circuit shown below using Norton’s Theorem shown Fig |
| 5 | Find the voltage across -j2 Ω capacitor using superposition theorem for Figure. All impedance values are in ohms |
| 2 | Define graph, tree, co-tree and rank of a tree. |
| 5 | Define basic cut-set and basic loop incidence matrices and write these for the following graph by taking 1, 2, 3 as tree branches as shown in Figure4 |
| 5 | Define the following terms with respect to Graph theory: i) Branch, ii) Tree, iii) Node, iv) Tree link, v) Cut-set, vi) Tie – set, and vii) Incidence matrix |
| 2 | A amgnetic circuit has core length of 160cm and uniform cross sectional area of 5 cm2 . It has an air gap of 0.8mm and it is wound with a coil of 1200 turns. Determine the self inductance of the coil if a core material has relative permeability of 1600. |
| 5 | Explain Tie-set matrix by considering an example. |
| 5 | Find the total inductance of series connected coupled coils which is shown in fig below and values are given as L1= 1H, L2=2H, L3=5H, M12=0.5H, M23=1H, M13=1H. |
| 5 | Explain Cut-setmatrix with suitable example. |
| 5 | The figure represents a resistive network. Draw its graph and select a suitable tree and obtain the Tie-set Matrix |
| 5 | Explain Incident matrix, Reduced Incident matrix with an example. |
| 5 | what is duality ?Explain the procedure for obtaining the dual of the given planar network |
| 5 |  |
| 3 | State the properties of a graph. |
| 5 | Two coi ls having 500 and 1000 turns, respectively, are wound side by side on a closed iron circuit of area of cross -section 100 cm2 and mean length 800 cm. Calculate the coefficients of self induct ion of the two coi ls and the mutual induct ion between the two. Neglect leakage. Take mr as 2000. I f a current steadily grows from 0 to 1 A in 0.1 sec, in the first coil, find emf induced in the other coil. |
| 5 | State and explain Faraday’s laws of electromagnetic induction. |
| 5 | In the Magnetic circuit detailed in Fig. with all dimensions in mm, calculate the required current to be passed in the coil having 200 turns in order to establish a flux of 1.28 mwb in air gap. Neglect Fringing and Leakage. |
| 5 | The combined inductance of two coils connected in series is 0.6H and 0.1H in series aiding and series opposing connections. If the self-inductance of each coil is 0.2H, find the coefficient of coupling? |
| 2 | Explain the importance of dot convention in coupled circui ts. |
| 5 | Derive an expression for the current response in R-L series circuit with a dc source? |
| 3 | Define time constant? What is the importance of it? |
| 3 | Derive an expression for the current response in R-C series circuit with a dc source? |
| 3 | Draw the network in Laplace domain and find I(S) |
| 5 | The circuit shown in figure below consisting of series RLC elements with R=10Ω,  L=0.5H and C=200mF has a sinusoidal voltage of v=150sin(200t+)If the switch is   closed at t=0,,determine the current equation? |
| 5 | The circuit shown in figure below consists of series R-L elements with R=150Ωand L=0.5H.The switch is closed when j =300.Determine the resultant current when voltage v=50 cos (100t+ )is applies to the circuit at t=0 |
| 5 | The circuit shown in figure below consists of series R-L elements with R=150Ωand C=200mF .The switch is closed when t=0.Determine the resultant current when voltage v=50 cos (100t+ )is applies to the circuit at t=0 |
| 3 | Draw the network in Laplace domain and find I(S) |
| 5 | Find the Z and Y parameters of the network shown in figure below? |
| 5 | Find the ABCD and H- parameters of the network shown in figure below? |
| 5 | Express Z parameters in terms of Y parameters? |
| 5 |  |
| 5 | Express ABCD parameters in terms of h parameters? |
| 5 | Find the transmission parameters of the network shown in figure |
| 5 | Explain Inter Connection of Two Port networks in series, Parallel and Cascaded configurations. Conversion of one parameter into other parameters & problems |
| 5 | T and П type attenuator and problem |
| 3 | What are poles and zeros? What is the importance of them? |
| 2 | What are the properties of Driving point functions? |
| 3 | What are the properties of transfer functions? |
| 2 | What are the necessary conditions for driving point functions? |
| 3 | What are the necessary conditions for transfer functions? |
| 5 | What is reflection co-efficient, VSWR, problems on Reflection coefficient and VSWR |
| 2 | What are Lumped and distributed parameters in transmission Lines |
| 2 | What is characteristic impedance and propagation constant. |
| 2 | What is the condition for a distortion less transmission line? |
| 2 | What is meant by stub matching? |
| 5 | Explain about Smith Chart. |
| 3 | What are the primary constants of a transmission line? |
| 3 | What are the uses of Smith Chart? |
| 3 | What are the applications of Smith Chart? |
| 2 | Define Transmission line. |
| 3 | What are the various loads in a transmission line. |
| 5 | List out different types of transmission lines and draw their schematic diagrams. |
| 5 | Derive the condition for a distortion less transmission line? |
| 5 | Derive the condition for a lossless transmission line |
| 5 | Determine the reflection coefficients when i. ZL = Z0 ii. ZL = short circuit iii. ZL = open circuit. Also find out the magnitude of reflection coefficient when ZL is purely reactive. |
| 5 | Derive the expressions for phase and group velocities. |
| 5 | A transmission line in which no distortion is present has the following parameters Z0= 50 ohms, attenuation constant of 20mNP/m, Determine R, L, G, C and wavelength at 0.1 GHz. |
| 5 | Find the input impedance of 75ohm lossless transmission line of length 0.1 m when the load is a short. |
| 5 | Explain how single stub matching can be used for impedance matching. |
| 5 | Explain briefly properties of Smith Chart. |
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