

Dr. Mahalingam College of Engineering and Technology, Pollachi-3

(An Autonomous Institution)

CCET I (2016_Regulation)

Name of Programme: BE-Electrical and Electronics Engineering

Course Code&Course Title: 16EET44 Networks and Signals

Sem:IV Date& Session: **31.01.18(FN1)** Duration: 1½ hours Max. Marks: 50

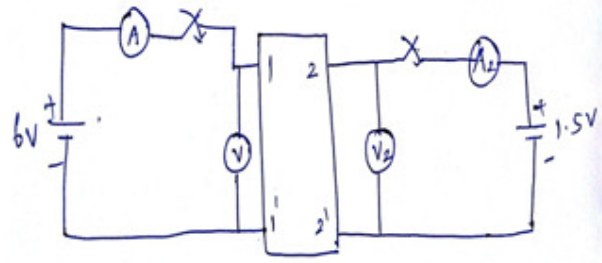
Part- A Objective Questions (10X1=10 Marks)			
Q. No	Question	CO No	Blooms Level
1	The impedance matrices of two, two port networks are given by $\begin{bmatrix} 3 & 2 \\ 2 & 3 \end{bmatrix}$ and $\begin{bmatrix} 15 & 5 \\ 5 & 25 \end{bmatrix}$. If the two networks are connected in series. What is the impedance matrix of the combination. a) $\begin{bmatrix} 3 & 5 \\ 2 & 25 \end{bmatrix}$ b) $\begin{bmatrix} 18 & 7 \\ 7 & 28 \end{bmatrix}$ c) $\begin{bmatrix} 3 & 8 \\ 2 & 35 \end{bmatrix}$ d) $\begin{bmatrix} 15 & 2 \\ 5 & 3 \end{bmatrix}$	CO1	U
2	The ABCD parameters of an ideal n:1 transformer is $\begin{bmatrix} n & 0 \\ 0 & x \end{bmatrix}$. The value of x will be a)x=n b)x=0 c)x=1 d)x=1/n	CO1	AP
3	Which parameters are widely used in transmission line theory a)Z parameters b) Y parameters c)ABCD parameters d)h parameters	CO1	U
4	For a two-port network to be reciprocal. a) $Z_{11}=Z_{22}$ b) $h_{21}=-h_{12}$ c) $Y_{11}=Y_{22}$ d) $AD-BC=0$	CO1	U

5	For a lattice network the value of the series impedance is 3Ω and that of the diagonal impedance is 5Ω , then Z parameters of the network are given by a) $Z_{11}=Z_{22} = 2\Omega$, $Z_{12}=Z_{21} = 1/2\Omega$, b) $Z_{11}=Z_{22} = 4\Omega$, $Z_{12}=Z_{21} = 1\Omega$, c) $Z_{11}=Z_{22} = 8\Omega$, $Z_{12}=Z_{21} = 2\Omega$, d) $Z_{11}=Z_{22} = 5\Omega$, $Z_{12}=Z_{21} = 2\Omega$,	CO1	U
6	The expression of A in transmission parameter interms of Z parameter_____	CO1	U
7	In the first Foster form the presence of last element inductor $L\propto$ indicates (a) pole at $\omega=0$ (b) pole at $\omega = \propto$ (c) zero at $\omega = \propto$ (d) zero at $\omega = 0$	CO1	U
8	An LC impedance or admittance function _____ (a) has simple poles and zeros in the left half of the s-plane. (b) has no zero or pole at the origin or infinity. (c) is an odd rational function. (d) has all poles on the negative real axis of the s-plane	CO2	U
9	Poles and Zeros are called critical frequencies. True/False	CO2	U
10	Pole at infinity indicates that the a)degree of numerator is greater than that of denominator b) degree of denominator is greater than that of numerator c) degree of denominator is equal to degree of numerator	CO2	U

Part- B Short Answer Questions (5X2=10 Marks)			
Q. No	Question	CO No	Blooms Level
11	Define (i) Driving point impedance (ii) Transfer impedance	CO1	U
12	For the ladder two-port network shown find the open circuit driving point impedance at port 1-2	CO1	U
13	Draw the pole zero plot for a given network function. $Z(S) = \frac{3s(s+1)^2(s+5)}{(s+1)(s+3+j2)(s+3-j2)}$	CO1	U
14	List out the properties of RL impedance function	CO2	U
15	Identify the suitable network for the following impedance function. (i) $Z(S) = \frac{(s+1)(s+4)(s+8)}{s(s+2)(s+6)}$ (ii) $Z(S) = \frac{s(s^2+4)}{(s^2+1)(s^2+25)}$	CO2	U

Part- C Descriptive - either or questions (2X15=30 Marks)

Q. No	Question	CO No	Blooms Level
16.	Find the transmission or general circuit parameters of the given network	CO1	Ap
(a)			
OR			
16.	Determine the Z and h parameters for the two port network shown below which is excited by external DC sources. The voltages and currents are measured with voltmeters V ₁ , V ₂ and ammeters A ₁ , A ₂ as indicated. Under the following conditions readings are obtained are (i) S ₁ --open S ₂ --closed A ₁ =0A V ₁ =4.5V V ₂ =1.5V A ₂ =1A (ii) S ₁ --open S ₂ --open A ₁ =4A V ₁ =6V V ₂ =6V A ₂ =0A	CO1	Ap

			
17. (a)	Analyse in Foster I and Foster II forms of realization of following driving point function $Z(S) = \frac{2s^2 + 12s + 16}{s^2 + 4s + 3}$	CO2	An
OR			
17. (b)	Analyze the given network by Cauer I and Cauer II method $z(s) = \frac{2(s+2)(s+3)}{(s+2)(s+6)}$	CO2	An

Note: Code for Blooms Levels:

Sl. No.	Blooms Level	Code
1	Remember	R
2	Understand	U
3	Apply	Ap
4	Analyze	An
5	Evaluate	E
6	Create	C

Prepared by (Course Handling Faculty)

Name:

Designation:

Signature with Date

Verified by (Course Coordinator)

Name:

Designation:

Signature with Date

Approved by:

Head of the Department