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**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_\_

**End Semester Examination – Nov/Dec - 2016**

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|  |  | **Semester :** | **2016-17 ODD** |
| **Code :** | **11EC202** | **Duration :** | **3 hrs** |
| **Sub. Name :** | **NETWORK ANALYSIS&SYNTHESIS** | **Max. marks :** | **100** |

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| **Q. No.** | **Questions** | **Marks** |
| **PART-A(10X1=10 MARKS)** | | |
| 1. | Define ‘Transfer Admittance’ of a two port network. | (1) |
| 2. | State any one property of transfer functions. | (1) |
| 3. | If G(jω) =R(ω)+ j X(ω), express | G(jω)| and ∠ G(jω) in terms of R(ω)and X(ω). | (1) |
| 4. | State the Routh criterion for stability. | (1) |
| 5. | Define Tree and Co tree of a network. | (1) |
| 6. | What is meant by duality of a network? | (1) |
| 7. | Give one application of Lattice network. | (1) |
| 8. | The attenuation is not sharp in the stop band for an m-derived filter.  a) True b) False | (1) |
| 9. | In a Hurwitz polynomial, all coefficients are\_\_\_\_\_\_\_\_\_. | (1) |
| 10. | In the first Foster form, the presence of first element capacitor Co indicates pole at \_\_\_\_\_\_\_. | (1) |
| **PART B(5 X 3= 15 MARKS)** | | |
| 11. | Give any three properties of Driving point functions. | (3) |
| 12. | Draw Pole –Zero diagram for the given function. | (3) |
| 13. | State the properties of incidence matrix. | (3) |
| 14. | The Z parameters of a two port network are Z11 = 3Ω, Z22=1Ω, Z12 = 1 Ω and Z21 = 2Ω,  find the admittance matrix. | (3) |
| 15. | Write any three properties of Hurwitz polynomials. | (3) |
| **PART C(5 X 15= 75 MARKS)** | | |
| 16. | For the given network function, draw the pole zero diagram and hence obtain the time  domain response i(t).  I(s) = | (15) |
| (OR) | | |
| 17. | Calculate voltage transfer function G21(s) and transfer impedance Z21(s) of the given network. | (15) |
| 18. | Draw the complex locus plot of the admittance function of the RLC series circuit. | (15) |
| (OR) | | |
| 19. | Draw poles and zeros for Y(s) =  and use it to plot amplitude and phase characteristics for w=0, 2, 5 and 10. | (15) |
| 20. | Draw the graph of the network shown in figure. Select node pair potential variable and formulate cut-set matrix. Write the equilibrium equation.  4H  Es  2 F  1 H  1Ω  -  +  M = 1 H | (15) |
| (OR) | | |
| 21. | Find the branch currents and branch voltages for the given network using Tie-set schedule.  5V  1Ω  1Ω  1Ω  2Ω  2Ω | (15) |
| 22. | The impedance parameters of a two port network are Z11 =6Ω ; Z22 = 4Ω ;  Z12=Z21 =3Ω.Compute the Y parameters and ABCD parameters and write the describing equations. | (15) |
| (OR) | | |
| 23. | Design a Low pass filter having a cut-off frequency of 2KHz to operate with a terminated load resistance of 500Ω. Draw T-section and π-section. | (15) |
| 24. | Find the two cauer realizations of driving point function given by | (15) |
| (OR) | | |
| 25. | Find the two Foster realizations of the given function | (15) |