Code No: F-13032/O/BL/AICTE

FACULTY OF ENGINEERING

B.E. (ECE) III Semester (AICTE) (Backlog) (Old) Examination, August/September 2024

Subject: Network Theory

Time: 3 Hours Max. Marks: 70

(Missing data, if any, may be suitably assumed)

PART – A

(10 x 2 = 20 Marks)

Note: Answer all the questions.

1. Write the g-parameter and h- parameter equations for Two-Port Equations.
2. Define Parallel-Input and Parallel-Output Interconnection in Two-Port Networks.
3. Define Attenuation Constant and Write Relation between Nepers and Decibels.
4. Define a Composite Filter and Write its advantages.
5. What are the advantages of Constant-Resistance Equalizers?
6. Develop a Bridge-T Attenuator with nominal resistance R0=600 ohms and attenuation D=60-dB.
7. Write any four properties of LC functions.
8. Write the condition for Inverse Network Elements and give some examples ofinverse networks.
9. Write any four properties of Positive Real functions.
10. Define Impedance matching and what the types of impedance matching networks are

PART – B

(5 x 10 = 50 Marks)

Note: Answer any five questions.

11. Calculate the Z-parameters of a network having series arm impedances of 600ohms and 340 ohms respectively and shunt arm impedance of 120 ohms. Calculate the abcd parameters from the above h-parameters.

12. Derive the expressions for image and iterative impedances of Symmetrical-T network.

13. Design a high pass composite filter (T-type) to have a cut-off frequency of 1000 Hz and a characteristic impedance of 600 ohms. Use one constant-K T-section, one m-derived T-section and two terminating half sections with m=0.6. The frequency of infinite attenuation is 1050 Hz.

14. Define an attenuator and write the applications of attenuators attenuator is composed of a symmetrical Pi-section having a series arm of 175 ohms and a shunt arm of 350 ohms. Evaluate the Design resistance and attenuation in db.

15. Realize the given function Using Cauer-1& Cauer-2
$Z(s) = \{4(S^2 + 1)(S^2 + 9)\}/\{S(S^2 + 4)\}$

16. Realize the given function Using Foster-1& Foster-2
$Z(s) = \{(S + 1)(S + 4)\}/\{S(S + 2)\}$

17. Write Short Notes on impedance matching networks.