(b) What is Laplace Transform ? Explain the advantages of Laplace transformation. **5**

(c) Find the *z*-transmeters for the T representation of a 2-port network. **5**

(d) What are the restrictions of location of poles and zeros in driving point functions ? **5**

Roll No. ..... **Total Pages : 04**

July-22-00238

B.Tech. EXAMINATION, 2022

Semester III (CBCS)

NETWORK ANALYSIS AND SYNTHESIS

EC-303

(ECE, EE, EEE)

Time : 3 Hours *Maximum Marks : 60*

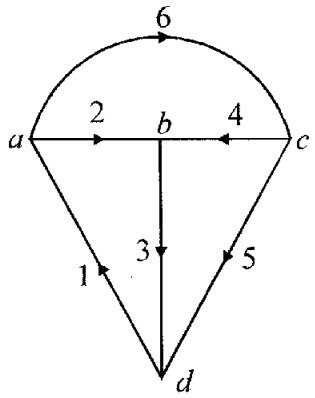
The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : Attempt *Five* questions in all, selecting *one* question from each Sections A, B, C and D. Q. No. **9** is compulsory.

Section A

1. Explain dot convention in coupled circuits with suitable example. **10**

2. Define the term branch, node and tree. Also find the incidence and cut set matrices for the graph shown below. **10**



Section B

3. Write the property of Laplace Transform : **10**

   (a) Unit impulse

   (b) Unit step

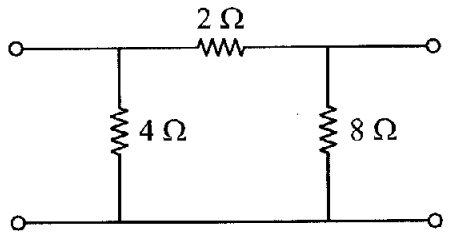
   (c) Unit ramp function.

4. Derive the expression for transient response of a RC circuit when the DC source is suddenly applied. **10**

Section C

5. Give the application of *h*-parameter and also state the relation between *h*-parameter with transmission parameter. **10**

6. Obtain the *y* parameters for the network shown in Figure below : **10**



Section D

7. What is positive real function ? Explain the concept of network synthesis. **10**

8. Find the first Cauer form of RC network

$$Z(s) = \frac{(s+3)(s+6)}{(s+1)(s+5)}.$$ **10**

(Compulsory Question)

9. (a) State and explain Norton's Theorem with suitable example. **5**