# ANURAG GROUP OF INSTITUTIONS
(Autonomous)
School of Engineering
II-B.Tech-I-Semester End Examinations, October / November - 2019
Subject: Electrical Circuit Analysis
(Only for EEE)

Time: 3 Hours   **Max.Marks:75**

Section – A (Short Answer type questions)   (25 Marks)

- Answer **All** questions

|		
1.	Give some applications of Milliman's theorem.	2M
2.	State and explain reciprocity theorem.	3M
3.	Define incidence and reduced incidence matrix.	2M
4.	Distinguish between balanced and unbalanced loads.	3M
5.	Write inductor and capacitor behavior during steady state condition with initial storage.	3M
6.	Write the relation between line voltage, phase voltage and lime current, phase current in a 3-phase balanced star connected system .	2M
7.	What is the use of pole-zero diagrams?	2M
8.	Explain the physical interpretation of complex frequency.	3M
9.	In a two-port network, A=6, B=2, C=4, D=2.Determine h11 and h22 parameters	2M
10.	Express reciprocity conditions for h-parameters and Y- parameters.	3M

Section – B(Essay Type questions)   (5x10=50 Marks)

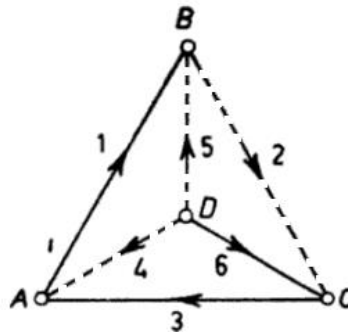- **Answer all questions, each question carry equal marks.**

11. A) Obtain the Thevenin's and Norton's equivalent of the given circuit.   10M
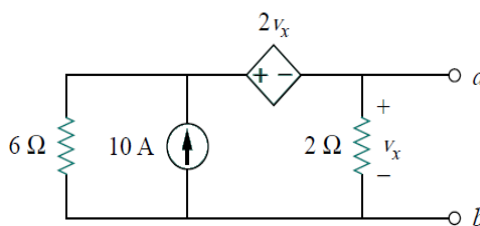
OR

B) Using superposition theorem find Vx.   10M
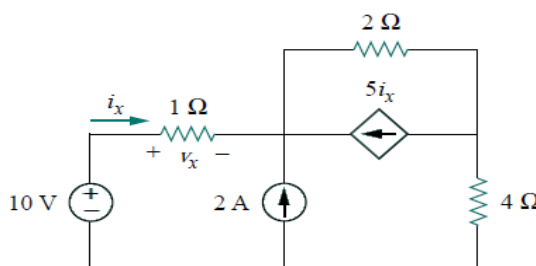
12. A) Construct the Basic incidence, basic tie-set and basic cut-set matrices of the
   following graph.   10M

OR

B) Derive the relation between line and phase currents and voltages in a balanced
   delta connected 3-phase system with neat phasor diagram.   10M

13. A) Derive the transient response of series RC circuit with DC excitation using
       Differential Approach and Laplace transform approach.   10M

OR

B) Determine v(t) at t > 0 and calculate its value at t = 1s and 4s. The switch has
   been in position A for a long time. At t = 0, the switch moves to B.   10M
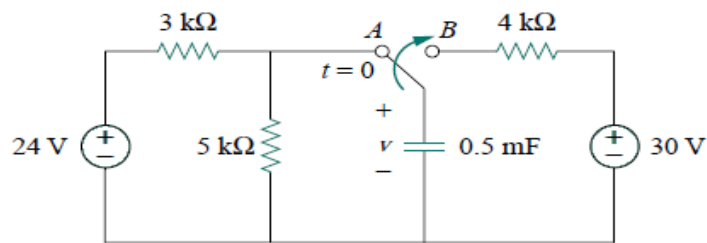
14. A) What are poles and zeros of network functions? Obtain pole-zero configuration
    of the following network.   10M
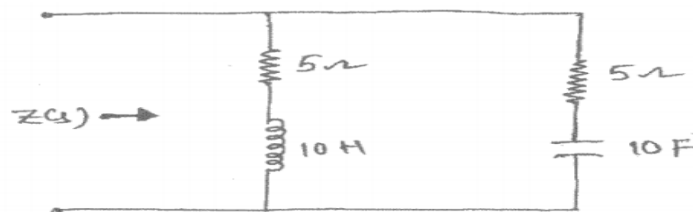
OR

B) Mention the necessary conditions for driving point and transfer functions.   10M

15. A) Derive the expression of two port networks connected in parallel and in cascade
    connection with examples.   10M

OR

B) Determine the Z, h-parameters of the network given below.   10M