Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

PDDC - SEMESTER– II EXAMINATION – SUMMER 2015

Subject Code: X20901 **Date:**01/06/2015

Subject Name: Circuits and Networks

Time: 10.30am-01.00pm **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	What is network function? Define the terms "Driving point impedance" and "driving point admittance" of a one port network.	**07**
	(b)	State and explain Millman's theorem.	**07**
Q.2	**(a)**	Write the property of Laplace Transform (1) Unit impulse (2) Unit step and (3) Unit ramp function	**07**
	(b)	Give the application of h-parameter and also state the relation between h-parameter with y-parameter	**07**
		OR	
	(b)	Derive the symmetry and reciprocity condition for transmission parameter	**07**
Q.3	**(a)**	Derive the condition for a maximum power transfer	**07**
	(b)	Explain any four technique of source transformation	**07**
		OR	
Q.3	**(a)**	Explain the concept of Super-node with one suitable example.	**07**
	(b)	Derive the inter-relationship between incidence matrix, Tie-set matrix and cut-set matrix.	**07**
Q.4	**(a)**	Explain the following, **(I)** co-tree **(II)** junction **(III)** loop **(IV)** Bilateral Element **(V)** link **(VI)** Ideal Source	**07**
	(b)	Explain the concept of duality.	**07**
		OR	
Q.4	**(a)**	State and explain reciprocity theorem.	**07**
	(b)	Derive the initial and final value theorem of Laplace transform.	**07**
Q.5	**(a)**	Derive the transient response of series R-L circuit with DC excitation.	**07**
	(b)	Discuss the rules for drawing a graph and tree	**07**
		OR	
Q.5	**(a)**	Write short note on dependent sources.	**07**
	(b)	Explain dot convention.	**07**

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