GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–I &II (SPFU) EXAMINATION – SUMMER-2019

Subject Code: ENG005   **Date: 06/06/2019**

Subject Name: Liner Electrical Networks

Time: 10:30 AM TO 01:00 PM   **Total Marks: 70**

Instructions:
1. Attempt any five questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

Q.1	**(a)**	Explain pole-zero construction of RLC series circuit.	07
	(b)	Explain maximum power transfer theorem. Also discuss its advantages and disadvantages.	07
Q.2	**(a)**	What is Laplace transform? Explain importance and applications of Laplace transform.	07
	(b)	Find Laplace transform of $f_1(t) = \cos \omega t$ and $f_2(t) = e^{-at} \sin \omega t$.	07
Q.3	**(a)**	Explain Thevenin's theorem.	07
	(b)	Explain z-parameter in terms of h-parameter.	07
Q.4	**(a)**	What is meant by poles and zeros of a network function? What is the significance of poles and zeros? Discuss the restrictions on locations of poles and zeros of transfer functions.	07
	(b)	Explain the Superposition Theorem.	07
Q.5	**(a)**	Explain Initial Conditions in Circuit which Contain Resistor and Inductor.	07
	(b)	Explain necessary conditions for Transfer Function.	07
Q.6	**(a)**	Explain Duality.	07
	(b)	Derive equation of resonant frequency for parallel resonance condition. Compare series resonance with parallel resonance.	07
Q.7	**(a)**	Explain Series resonance condition with concept of Q-factor.	07
	(b)	State and Prove Convolution Integral.	07

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