GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER– VII (New) EXAMINATION – WINTER 2019

Subject Code: 2171001   **Date: 23/11/2019**

Subject Name: Microwave Engineering

Time: 10:30 AM TO 01:00 PM   **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)**	List microwave applications.	**03**
	(b)	Discuss the merit and demerits of microwave signals.	**04**
	(c)	What is S- parameter? Discuss the Properties of S- parameter and prove any one with necessary mathematical derivation.	**07**
Q.2	**(a)**	Explain the setup of polar plot measurement of any microwave antenna.	**03**
	(b)	Draw the block diagram of Network analyzer and discuss in brief.	**04**
	(c)	Discuss the Radar systems and its applications	**07**
		OR	
	(c)	Explain the Radiometer systems.	**07**
Q.3	**(a)**	Define VSWR, Reflection Coefficient and Transmission Coefficient.	**03**
	(b)	Compare the different micro strip lines.	**04**
	(c)	Explain the double stub impedance matching technique with suitable example.	**07**
		OR	
Q.3	**(a)**	Plot the relation between reflection coefficient and VSWR.	**03**
	(b)	Explain the quarter wave transform for impedance matching application.	**04**
	(c)	Explain the smith chart with necessary derivation.	**07**
Q.4	**(a)**	Derive the S matrix for 3 port circulator.	**03**
	(b)	Explain Magic Tee with its applications.	**04**
	(c)	Discuss reflex klystron with suitable diagrams.	**07**
		OR	
Q.4	**(a)**	Explain Tunnel Diode with its applications.	**03**
	(b)	Discuss in brief different type of microwave attenuators.	**04**
	(c)	Discuss the Magnetron with its construction and applications.	**07**
Q.5	**(a)**	Explain in brief Microwave imaging.	**03**
	(b)	Discuss the effects of microwave on human body.	**04**
	(c)	Discuss the techniques to measure the microwave antenna parameters.	**07**
		OR	
Q.5	**(a)**	Explain in brief EMI and EMC issue.	**03**
	(b)	Discuss RF MEMS for microwave components.	**04**
	(c)	Discuss the basic three laws for satellite communication systems.	**07**

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