GUJARAT TECHNOLOGICAL UNIVERSITY ME – SEMESTER-1 (NEW) EXAMINATION – WINTER 2016

Subject Code: 2710504 Date:04/0 Subject Name: RF AND MICROWAVE			/2017	
Tiı	me: 2	2:30 pm to 5:00 pm Total Marks:	70	
Inst	tructio 1	ons: Attempt all questions.		
	2.	Make suitable assumptions wherever necessary.		
01	3.	Figures to the right indicate full marks. What is Microwaya Integrated Circuit? Explain MMIC in brief with advantages	07	
Q.1	(a)	and disadvantages.	07	
	(b)	Discuss the importance of T and π matching networks.	07	
Q.2	(a)	Explain significance of microwave and its application in details.	07	
	(b)	Derive the following.	07	
		 (1) Y-Parameters in terms of Z-Parameters. (ii) Z-Parameters in terms of ABCD-Parameters 		
		OR		
	(b)	Show that Scattering matrix for a reciprocal network is symmetric and for a lossless network is unitary.	07	
0.3	(a)	What is Parametric Amplifier? Write the amplification mechanism of a	07	
C ¹⁰		parametric amplifier.		
	(b)	Explain the construction and operation of Varactor diode. Draw the equivalent	07	
		OR		
Q.3	(a)	What do you understand by Avalanche Transit Time effect? Explain working,	07	
	(b)	construction and application of TRAPATT device.	07	
	(D)	equivalent circuit and give its applications.	07	
0.4	(a)	Describe the working of Directional Coupler with the help of two-hole	07	
2.1	(4)	directional coupler. Derive the expression for its scattering matrix.	07	
	(b)	Why is a Hybrid Tee referred to as Magic Tee? Explain the operation of magic	07	
		cee with scattering matrix.		
Q.4	(a)	Explain construction and application of circulator.	07	
	(b)	Write short notes on Ferrite Phase Shifter.	07	
Q.5	(a)	What are the limitations of conventional tubes at microwave? How Klystron	07	
		amplifier overcome this limitation. Explain its construction and working.	07	
	(D)	VSWR at microwave.	U/	
		OR		
Q.5	(a)	Explain the amplification process in TWT amplifier. Write an advantage of it's	07	
	(h)	OVER KIYSTRON. What are the different techniques used for the measurement of Impedance at	07	
		Microwave frequency? Explain any one in detail.	01	
