Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME – SEMESTER II– EXAMINATION – WINTER - 2016

Subject Code: 2724404 **Date: 18/11/ 2016**

Subject Name: RF and Microwave Engineering

Time: 2:30 pm to 5:00 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)**	Explain Smith chart with required derivations.	**07**
	(b)	What do u mean by Conjugate Matching? Explain with all necessary equations	**07**
Q.2	**(a)**	Derive the equation of cut off frequency for TM mode in rectangular waveguide.	**07**
	(b)	Explain Microstrip line with necessary equations	**07**
		OR	
	(b)	Derive the general solution of TE wave with all necessary equations.	**07**
Q.3	**(a)**	Explain admittance, impedance and scattering matrices.	**07**
	(b)	Define the signal flow graph. Discuss decomposition rules of the signal flow graph.	**07**
		OR	
Q.3	**(a)**	Explain theory of the small reflections	**07**
	(b)	Derive the equation of Q-factor for open-circuited $\lambda/2$ transmission line.	**07**
Q.4	**(a)**	Explain waveguide directional coupler in details.	**07**
	(b)	Write short note on the 180° hybrid.	**07**
		OR	
Q.4	**(a)**	Explain Ferrite Isolator in details	**07**
	(b)	Write short note on Ferrite Phase Shifter	**07**
Q.5	**(a)**	Explain filter design by insertion loss method.	**07**
	(b)	Write short note on Filter Transformations	**07**
		OR	
Q.5	**(a)**	Explain filter design by image parameter method	**07**
	(b)	Write short note on system aspect of antenna.	**07**

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