Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

PDDC - SEMESTER–VII EXAMINATION – SUMMER 2016

Subject Code:X71101 **Date:10/05/2016**

Subject Name: Microwave Engineering

Time:02:30 PM to 05:00 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 the advantages and applications of microwaves. Also explain each in brief	**07**
	(b)	Derive transmission line equations	**07**
Q.2	**(a)**	List the characteristics and applications of smith chart. Also explain each in brief	**07**
	(b)	List advantage, disadvantage and application of circular waveguide	**07**
		OR	
	(b)	A hollow rectangular waveguide has dimensions a = 4 cm, b = 2 cm. Calculate the amount of attenuation if the frequency of signal is 3 GHz	**07**
Q.3	**(a)**	A 4 GHZ signal is propagated in a rectangular waveguide with internal dimensions of 5 cm x 2.5cm. Assuming the dominant mode, calculate cut-off wavelength; guide wavelength; group velocity; phase velocity and characteristic wave impedance of the guide	**07**
	(b)	Derive Scattering Matrix for E-plane Tee	**07**
		OR	
Q.3	**(a)**	List the applications of Magic Tee and explain each in detail	**07**
	(b)	Explain Circulator in detail	**07**
Q.4	**(a)**	Explain Two Cavity Klystron Amplifier in detail	**07**
	(b)	Explain Magnetron in detail	**07**
		OR	
Q.4	**(a)**	Explain Travelling Wave Tube in detail	**07**
	(b)	Explain Parametric Amplifier in detail	**07**
Q.5	**(a)**	Explain Tunnel Diode in detail	**07**
	(b)	Explain PIN Diode in detail	**07**
		OR	
Q.5	**(a)**	Explain basic principle of RADAR and derive radar range equation	**07**
	(b)	Explain MTI RADAR in detail	**07**

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