Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

PDDC– SEMESTER VII– • EXAMINATION – SUMMER - 2016

Subject Code: X71101 **Date:23/11/2016**

Subject Name: Microwave Engineering

Time:10:30 AM to 1:00 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)**	Give the advantages and applications of microwaves	**07**
	(b)	Derive the equation of input impedance in term of characteristic impedance, load impedance, phase constant and length of transmission line	**07**
Q.2	**(a)**	Derive the equations for electric and magnetic field components in x and y coordinates in terms of electric and magnetic field components in z coordinates for propagation of waves in rectangular waveguides	**07**
	(b)	Give the advantages, disadvantages and applications of circular waveguides	**07**
		OR	
	(b)	Explain in brief wave-guide corners, bends and twists each	**07**
Q.3	**(a)**	Explain H-plane Tee in detail	**07**
	(b)	When the dominant mode is propagated in an air filled rectangular waveguide, the guide wavelength for a frequency of 10000 MHz is 10cm. Calculate breath of the guide	**07**
		OR	
Q.3	**(a)**	Give the applications of Magic Tee and explain each in brief	**07**
	(b)	Determine the cutoff wavelength for the dominant mode in a rectangular waveguide of breadth 10cm. For a 3GHz signal propagated in this waveguide in the dominant mode, calculate the guide wavelength, the group and phase velocities	**07**
Q.4	**(a)**	Give the high frequency limitations of conventional tubes and explain each in brief	**07**
	(b)	Discuss in detail two cavity klystron oscillator	**07**
		OR	
Q.4	**(a)**	Explain Isolator in detail	**07**
	(b)	Explain mode jumping, frequency pushing and pulling in magnetron	**07**
Q.5	**(a)**	Explain parametric amplifier in detail	**07**
	(b)	List the RADAR displays and explain each in brief	**07**
		OR	
Q.5	**(a)**	Give the applications of PIN diode and explain each in brief	**07**
	(b)	Explain with block diagram the moving target indicator radar	**07**

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