Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

PDDC - SEMESTER–VII • EXAMINATION – SUMMER • 2015

Subject Code: X71101 **Date:08/05/2015**

Subject Name: Microwave Engineering

Time:02:30 pm - 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 out the general and industrial applications of microwaves	**07**
	(b)	Explain smith chart in detail.	**07**
Q.2	**(a)**	Derive equation of voltage and current relationships and characteristic impedance on a transmission line.	**07**
	(b)	Explain impedance matching in detail.	**07**
		OR	
	(b)	A 50 ohm transmission line is terminated in an impedance of Z_L= 35-j47.5. Find the position and the length of short circuited stub to match it using smith hart method.	**07**
Q.3	**(a)**	1) Give the advantage of microstrip lines over strip lines.	**03**
		2) Explain types of microstrip lines.	**03**
		3) Give the limitations of microstrip lines.	**01**
	(b)	List out the similarities and dissimilarities of waveguide with 2-wire transmission lines	**07**
		OR	
Q.3	**(a)**	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**
	(b)	Explain circulator in detail	**07**
Q.4	**(a)**	Explain directional couplers in detail	**07**
	(b)	Explain E-plane Tee in detail	**07**
		OR	
Q.4	**(a)**	Explain the applications of magic Tee in detail	**07**
	(b)	Explain H-plane Tee in detail	**07**
Q.5	**(a)**	Explain two cavity klystron amplifier in detail	**07**
	(b)	Explain basic principal of RADAR and derive equation of RADAR range	**07**
		OR	
Q.5	**(a)**	Explain TUNNEL diode in detail	**07**
	(b)	Explain Travelling Wave Tube in detail	**07**

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