Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME – SEMESTER III (NEW) – EXAMINATION – WINTER-2016

Subject Code: 2732701 **Date:25/10/2016**

Subject Name: Smart Antenna for Wireless Communication

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)**	Define: (i) beam width, (ii) directivity, (iii) gain (iv) antenna apertures, (v) radiation efficiency, (vi) radiation resistance, (vii) antenna polarization.	**07**
	(b)	Explain various types of small scale fading.	**07**
Q.2	**(a)**	Write short note on direction finding PL systems.	**07**
	(b)	Describe statistical models for multipath propagation.	**07**
		OR	
	(b)	Write short note on rake receiver for CDMA system.	**07**
Q.3	**(a)**	What is the need for smart antenna system? Explain architecture and advantages of smart antenna system.	**07**
	(b)	What is spatial signature? Explain with the help of vector channel impulse response.	**07**
		OR	
Q.3	**(a)**	Explain multipath and co-channel interference.	**07**
	(b)	Differentiate fixed beam forming networks and switched beam systems.	**07**
Q.4	**(a)**	Write short note on wideband smart antenna system.	**07**
	(b)	Write short note on coherent and non-coherent CDMA spatial processors.	**07**
		OR	
Q.4	**(a)**	Write short note on sectoring.	**07**
	(b)	Explain down-link bean forming for CDMA.	**07**
Q.5	**(a)**	Explain range extension in CDMA system.	**07**
	(b)	Explain true ranging PL systems.	**07**
		OR	
Q.5	**(a)**	Explain range and capacity analysis in CDMA using smart antennas.	**07**
	(b)	Write short note on TDOA estimation techniques.	**07**

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