Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME- SEMESTER II– EXAMINATION – SUMMER 2015

Subject Code: 2724110 **Date: 26/05/2015**

Subject Name: Advances in Wireless Communication

Time: 2:30 PM – 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 fast and slot fading for mobile radio. Explain Rayleigh Fading with require equation.	**07**
	(b)	Explain significance of time-flat, frequency-flat, time-selective and frequency-selective wireless channels with equations.	**07**
		OR	
Q.2	**(a)**	Explain all sources of the noise in the wireless channel	**07**
	(b)	Explain link budget from earth station to satellite with a suitable example	**07**
		OR	
	(b)	Explain link budget from satellite to mobile terminal with a suitable example.	**07**
Q.3	**(a)**	Explain direct-sequence modulation with the spreading equation and matched-filter receiver.	**07**
	(b)	Explain Walsh-Hadamard sequences, and Gold codes.	**07**
		OR	
Q.3	**(a)**	Explain multiple-access interference with reference to the advantages of the CDMA for wireless.	**07**
	(b)	Explain power control for the near-far problem.	**07**
Q.4	**(a)**	Explain maximal-ratio combining techniques of space diversity on receive	**07**
	(b)	Explain MIMO in terms of co-antenna interference and basic baseband channel model.	**07**
		OR	
Q.4	**(a)**	Explain Ergodic capacity, Outage capacity, two other special cases of the Log-Det formulas.	**07**
	(b)	Explain singular-value decomposition of the channel matrix.	**07**
Q.5	**(a)**	Explain Alamouti code with all properties.	**07**
	(b)	Explain differential space-time block code in details.	**07**
		OR	
Q.5	**(a)**	Explain Trubo-BLAST architecture in details.	**07**
	(b)	Explain keyhole channels	**07**

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