Seat No.:	Enrolment No.

## **GUJARAT TECHNOLOGICAL UNIVERSITY**

ME-SEMESTER II— EXAMINATION – SUMMER 2015

Subject Code: 2724408 Date: 30/0		5/2015	
	tructio 1. 2.	Attempt all questions.	70
Q.1	(a) (b)	Why DSSS is important? Explain in detail the characteristics of DSSS. Explain the concept of SSM Bandwidth from Shannon's Theorem.	07 07
Q.2	(a)	A recorded conversation is to be transmitted by a pseudo noise spread spectrum system. Assume that the spectrum of the speech waveform is band-limited to 5 kHz and use 256 quantization levels. (a) Find out the chip rate required to obtain a processing gain of 20 dB. (b) Given that the sequence length is to be greater than 5 hours, find out the number of shift register stages required.	07
	<b>(b)</b>	How OFDM is different than other existing techniques? Explain OFDM with neat block diagram.  OR	07
	<b>(b)</b>	Which are the selection parameters for modulation in OFDM? Explain them in detail.	07
Q.3	(a) (b)	Explain Rake Receiver in detail.  Explain synchronization and pilot insertion in OFDM.  OR	07 07
Q.3	(a) (b)	Compare CDMA with OFDM and explain other variants of OFDM briefly. Explain FHSS transmitter and receiver.	07 07
Q.4	(a) (b)	Explain space diversity and the systems based on space diversity.  Explain Cyclic Delay Diversity in detail.  OR	07 07
Q.4	(a) (b)	Explain Single User MIMO, Multi User MIMO and Multi-cell MIMO briefly. Explain the concept of SDR with its general structure of transceiver.	07 07
Q.5	(a) (b)	Explain the concept of WCDMA in detail.  Explain present trends and future of SDR.  OR	07 07
Q.5	(a) (b)	Explain the concept of LTE in detail.  Explain features and challenges of 4G.	07 07

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