

Roll No.

22158

M. E./M. Tech. 3rd Semester (ECE)

Examination – June, 2013

CDMA SYSTEM

Paper : MEEC-603

Time : Three hours]

[Maximum Marks : 100

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt any *five* questions. All questions carry equal marks.

1. (a) What is the role of PN (Pseudorandom Noise) sequences in CDMA Systems ? Explain how PN sequences are generated with linear feedback Shift Register. 10
- (b) Estimate the number of mobile users that can be supported by a CDMA System using an R.F. bandwidth of 1.25 MHz to transmit data at 9.6 kbps. Assume $E_b/N_0 = 6$ dB; the interference from neighboring cells $\beta = 60\%$; voice activity factor $\nu = 50\%$, Power control accuracy factor $\alpha = 0.8$. 10

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2. With the help of block diagram, explain Direct Sequence Spread-Spectrum system with coherent Binary phase shift keying. 20
3. Derive an expression for error probability for DS-CDMA on AWGN Channels. 20
4. (a) Distinguish between 2nd generation and 3rd generation CDMA systems. 10
(b) Derive an expression for capacity of cellular CDMA systems. 10
5. What is the effect of imperfect power control on CDMA system ? Explain Reverse link closed loop power control in detail. 20
6. What is soft Hand-off ? Explain different Hand-off procedures in detail. 20
7. (a) Explain the concept of Multi User Detection (MUD) in detail. Also give its limitations. 10
(b) Write a short note on spreading/coding tradeoffs in CDMA systems. 10
8. Write short notes on any *two* : $10 \times 2 = 20$
 - (a) Multicarrier CDMA,
 - (b) Performance Analysis of Cellular CDMA System,
 - (c) Rake Receiver.