



Reg. No. :

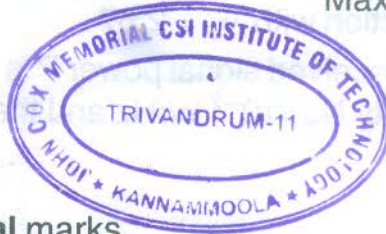
Name :

Seventh Semester B.Tech. Degree Examination, November 2013
(2008 Scheme)
08.755 CDMA SYSTEMS (T)

Time : 3 Hours

Max. Marks : 100

PART – A



Answer **all** questions. All question carries **equal** marks.

1. Explain the difference between DS-SS and FH-SS system.
2. Write short notes on Quasi-orthogonal expansion of spread spectrum signals.
3. Explain about coherent reception of FH-SS signals.
4. Explain the effect of frequency selective fading in CDMA.
5. Discuss about the error control coding scheme used in FH-CDMA system.
6. Explain the randomness property of a pseudo random sequence.
7. Explain the acquisition scheme used for FH-CDMA system.
8. Explain the difference between soft and hard hand off.
9. Explain the need for power control in CDMA system.
10. What do you mean by a decorrelating detector ? **(10×4=40 Marks)**

PART – B

Answer **any two** questions for **each** Module. All questions carry **equal** marks.

Module – I

11. With the help of a neat diagram explain the working of a pulse position hopped spread spectrum system.
12. Explain how coherent reception of DS-CDMA signal is performed in the uplink.



13. Each channel of the CDMA system IS-95 occupies 1.25 MHz of the spectrum on each oneway link. Bands of 25 MHz are available in each direction. The maximum user rate is $R = 9.6$ kb/sec. If a minimum acceptable E_b/I_0 is 6 dB, determine the capacity of a CDMA system using.
- Omnidirectional base station antennas and no voice activity direction and
 - Three sectored antenna at the base station with $v_a = 2.4$ and voice activity detection with $v_v = 2.67$.
- The received signal power P is 10^{-11} W, the one sided AWGN power spectral density $N_0 = 10^{-7}$ W/Hz and the other all relative interference factor $f = 0.6$

Module – II

- Explain the difference between convolution coding and orthogonal convolution coding used in DSSSS system.
- What do you mean by a pseudo random sequence? With the help of an example explain how a pseudo random sequence is generated.
- With neat diagram, explain the various schemes used for acquisition of DS-SS signals.

Module – III

- Derive expression for the capacity of a CDMA system. Discuss the effects of loading, rectorization and voice activity on capacity.
- Explain the working of optimum receivers. Derive expression for the correlation metric of an optimum receives.
- Write short notes on :
 - Open loop power control in CDMA system
 - MMSE Detector.

(6×10=60 Marks)