

- (b) Draw and explain the system initialization state of CDMA 15-95 system. (10)

8. Write short notes :

- (a) Multiuser Detection (10)  
(b) Coding Tradeoffs (10)

Roll No. ....

**22158**

**M.E. 3rd Semester ECE  
Examination- December, 2016**

**CDMA SYSTEM**

**Paper : MEEC-603**

**Time : 3 hours**

**Max. 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 the examination.

**Note :** Attempt any **five** questions.

1. Explain the concept of spectrum (spread).

Derive expressions for : (20)

(a) B.W.

(b) System processing gain

2. Write short notes on (20)

(a) Coherent BPSK

(b) QPSK

3. (a) Explain the concept of Bit scrambling. (10)

(b) Estimate the number of mobile users that can be supported by a CDMA system using an RFBW of 25 MHz to transmit data at 9.6 kbps with a processing gain  $E_b/N_0 = 6$  dB; the interference from neighbouring cells  $\beta = 60\%$ ,  $\nu = 50$  and  $\alpha = 0.8$ . (10)

4. (a) Consider a case where 16 chips per bits are used to generate Walsh functions. Specify the functions and sketch  $W_0, W_8,$

$W_{12}$  and  $W_{15}$ . Show that these Walsh functions are orthogonal. (10)

(b) What do you mean by performance analysis of cellular CDMA? How can it be analysed? (10)

5. (a) Estimate the capacity of CDMA system. (10)

(b) What are Soft Handoff's? Explain. (10)

6. (a) What is the concept of frequency sense? Explain how is it implemented in CDMA? (10)

(b) Explain the block diagram of Reverse CDMA channel structure. (10)

7. (a) Explain the Authentication process in IS-95 CDMA system. (10)