

Roll No. ....

**22158**

**M.E. 3rd Semester (ECE)  
Examination – January, 2016**

**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) Explain with help of neat diagram frequency hopped spread spectrum system. 10
- (b) Discuss in detail about various properties of maximum length pseudorandom sequence. 10
2. (a) Explain the concept of acquisition and tracking of spread spectrum signal. 10

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- (b) Estimate the number of mobile users supported by a cellular system using an RF bandwidth of 1.30 MHz. Assume  $E_b/N_0 = 10^{-5}$  W/Hz; interference from the neighbouring cell  $\gamma = 50\%$  and power spectral density of the mobile user that can be transmitted is 1.0 W/MHz. Calculate the number of users that can be supported by the system using an RF bandwidth of 1.30 MHz. Assume  $E_b/N_0 = 10^{-5}$  W/Hz; interference from the neighbouring cell  $\gamma = 50\%$ ; voice activity factor  $\alpha = 0.8$ . 10
3. (a) How can we analyze the performance of cellular systems using CDMA. Give all the parameters. 10  
 (b) How can we estimate the capacity of a channel in DS-SS-SSM? 10
4. Why power control in DS-SSM is essential? How it has been implemented in IS-95 CDMA? Explain with a suitable example. 20
5. Explain the following with reference to CDMA. 5 × 4 = 20  
 (i) Frequency diversity  
 (ii) Near-Far problem  
 (iii) Multi paths resistance  
 (iv) Self Jamming
6. (a) Derive formula for bit error probability for DS-SSM in AWGN channel. 10  
 (b) Write in detail about the second generation CDMA. 10
7. (a) Describe in detail the most widely used second generation CDMA scheme. 10  
 (b) Explain multi carrier CDMA. 10
8. Write short notes on : 10, 10  
 (i) Rake Receiver  
 (ii) Features of IS-95