Printed Pages—3 **EEC801**

(Following Paper ID and Roll No. to be filled in your Answer Book)

**PAPER ID : 2895** **Roll No.** | | | | | | | | | | |

**B.Tech.**

(SEM. VIII) EVEN THEORY EXAMINATION 2012-13

**WIRELESS AND MOBILE COMMUNICATION**

*Time : 3 Hours* *Total Marks : 100*

**Note :–** Attempt **all** questions. Each question carries equal marks.

1. Attempt any **four** parts of the following : **(5×4=20)**

   (a) Explain coherence time and coherence bandwidth.

   (b) Discus role of fading. Distinguish between flat fading and frequency selective fading.

   (c) What is transceiver ? Explain its function in detail.

   (d) Design an (n, k) single parity code that will detect all 1–, 3–, 5– and 7– error patterns in a block. Show the values of n and k, and find the probability of an undetected block error if the probability of channel symbol error is $10^{-2}$.

   (e) Describe the important features of wireless LAN technology.

   (f) What are limitations of mobile telephone systems ?

2. Attempt any **four** parts of the following : **(5×4=20)**

   (a) Differentiate between FH-SS and DS-SS systems. Define near–far problem.

(b) Explain working of RAKE receiver. What is m branch RAKE receiver ?

(c) Describe the various parameters of mobile multipath channel.

(d) Explain the difference between slow hopping and fast hopping in spread spectrum modulation. What is meant by a robust signal ?

(e) Describe the HATA model.

(f) Describe the effect of spread spectrum of bandwidth efficiency in MAI environment.

3. Attempt any **two** parts of the following : **(10×2=20)**

(a) Describe the various speech coders. Explain difference between waveform coder and hybrid coder.

(b) What is handoff ? Explain Queuing concept in hand off. What are advantages of delayed handoff ?

(c) What do you understand by coverage and capacity in cellular systems ? Explain various possible techniques to improve coverage and capacity in cellular systems.

4. Attempt any **two** parts of the following : **(10×2=20)**

(a) A total of 24 equal power terminals are to share a frequency band through a CDMA system. Each terminal transmits information at 9.6 kbps with a direct sequence spread spectrum BPSK modulated signal. Calculate the minimum chip rate of the PN code in order to maintain a bit error probability of $10^{-3}$. Assume that the receiver raise is negligible w.r.t. the interference from other users.

(b) Draw the architecture of GSM and explain each block. Compare IS-95 and DECT GSM.

(c) How does CDMA technology work in principle ? Give detailed features of GSM and CDMA mobile standards.

5. Attempt any **two** parts of the following : **(10×2=20)**

(a) What are the main characteristics of IMT-2000 standard ? Explain the 4G system and its applications.

(b) What do you understand by Mobile Data Network ? Explain important features of mobile Ad-Hoc networks.

(c) Discuss a complete model of Next Generation Network systems for mobile communication. How it is useful for network security ?