

Exam.Code:0970  
Sub. Code: 7345

1059  
M.E. (Electronics and Communication Engineering)  
Second Semester  
ECE-1203: Wireless and Mobile Communication

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Unit.

x-x-x

- I. Attempt the following:-
  - a) Name two technologies of second generation cellular system
  - b) Which type of Duplexing is used in GSM and what is the duplexing distance for 900MHz frequency band?
  - c) Define reservation protocol
  - d) Define Fading
  - e) List two differences between CDMA and WCDMA (5x2)

UNIT - I

- II. a) Discuss the recent trends in cellular radio and personal communications.  
b) Derive mathematically System capacity and state the factor on which this depends. (2x5)
- III. a) A cellular service provider decides to use a digital TDMA scheme which can tolerate a signal to interference ratio of 15dB in the worst case. Find the optimal value of N for (i) omnidirectional antennas, (ii) 60° sectoring, (iii) 120° sectoring. Should sectoring be used? If so, which case (60° or 120°) should be used?  
b) Explain the need of multiple access techniques in mobile communication. Compare TDMA and FDMA. (2x5)
- IV. a) Explain Wideband Code Division Multiple Access.  
b) What are power control strategies in GSM? Discuss. (2x5)

UNIT - II

- V. a) Explain CDMA WLL system.  
b) What is soft handoff? List its advantages and disadvantages. (2x5)
- VI. a) What is small scale fading? Explain factors influencing small scale fading.

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(2)

b) Assume two branch diversity is used, where each branch receives an independent Rayleigh fading signal. If the average SNR is 20dB, determine the probability that the SNR will drop below 10dB. Compare this with the case of a single receiver without diversity. (2x5)

VII. a) What is WiFi? Explain its architecture in detail.

b) Discuss Hata propagation model in detail. (2x5)

x-x-x