

1079
B.E. (Electronics and Communication Engineering)
Seventh Semester
EC-710: Wireless and Mobile Communication

Time allowed: 3 Hours

Max. Marks: 50

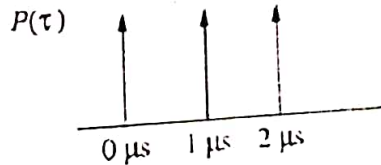
NOTE: Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Unit.

x-x-x

- I. Answer the following:-
- a) Which logical channel is mainly responsible for sending voice?
 - b) What is adjacent channel Interference?
 - c) What is Soft handoff?
 - d) What is flat fading?
 - e) Which modulation schemes are used in EDGE technology?
 - f) Why are equalizers used in communication?
 - g) What is dwell time?
 - h) Why more guard period is provided in RACH channel?
 - i) What is cell dragging?
 - j) Why FM signal is not termed as spread spectrum signal? (10x1)

UNIT - I

- II. a) Discuss the criteria for planning a cell size and explain the concept of frequency reuse. (2x5)
- b) What is GPRS technology? How is it different from HSCSD & GSM? (2x5)
- III. a) What is Wireless Local Loop? List its applications. (2x5)
- b) Write a technical note on Bluetooth & Personal Area Networks. (2x5)
- IV. a) What is handoff? Describe briefly the various handoff techniques used in GSM and CDMA.
- b) Compute the, mean excess delay and rms delay spread for the following power delay profile:



(2x5)

UNIT - II

- V. a) What are multiple access techniques? Compare TDMA with FDMA.
- b) Compare wireless & fixed telephone networks with suitable examples.

P.T.O.

(2)

- c) If GSM uses a frame structure where each frame consists of eight time slots, and each time slot contains 156.25 bits, and data is transmitted at 270.833 kbps in the channel, find (i) the time duration of a bit, (ii) time duration of a slot, (iii) how long must a user occupying a single time slot wait between two successive transmissions. (5.2.5)
- VI. a) Assume four branch diversity is used, where each branch receives an independent Rayleigh fading signal. If the average SNR is 20 dB, determine the probability that the SNR will drop below 10 dB. Compare this with the case of a single receiver without diversity.
- b) With neat block diagram explain how RAKE receiver provides diversity to improve the performance of CDMA receiver? (2x5)
- VII. a) Explain GSM Architecture in detail and list its air interface specifications for GSM 900 MHz.
- b) In frame structure of GSM of normal time slot, why would the 26 equalizer training bits be placed in the middle of the frame rather than at the beginning? What is the reason for having an 8.25 bit guard period after the data bursts? (2x5)

x-x-x