



1059

B.E. (Electrical and Electronics Engineering)
Eighth Semester

EE-809: Wireless Communication

Time allowed: 3 Hours

Max. Marks: 50

TE: 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) How does the GPRS differ from Computer Networks?
- b) What is Doppler Spread?
- c) What is near far Problem?
- d) What is handoff? Which type of Rand off is used in EDGE technology?
- e) What do you mean by air interface? (5x2)

UNIT - I

- II. a) What are Paging systems, Cordless telephone systems, and Cellular telephone systems? Give their brief comparison.
- b) What is UMTS? How can you say that UMTS is a 3G GSM? What are the similarities and differences between the 2G GSM and 3G UMTS? (2x5)
- III. a) What are the techniques used in GSM to enhance capacity of cellular mobile communication systems?
- b) What is small scale fading? Explain various factors influencing small scale fading and types of small scale fading. (2x5)
- IV. a) With the help of neat block diagram, explain the working of a QPSK transmitter.
- b) Can we call FM a spread spectrum technique?
- c) What is Direct Sequence Spread Spectrum system? Explain its modulation process with the help of suitable waveforms/diagrams. (3,2,5)

UNIT - II

- V. a) What is the role of Equalizers in wireless communication? Explain Decision Feedback Equalizer with the help of block diagram.
- b) Assume five 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. Compute the mean SNR. Compare this with the case of a single receiver without diversity. (5,5)

P.T.O.

(2)

- VI. a) 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.
- b) What is Signaling System No. 7?
- c) What is OFDM? Explain it with the help of suitable waveforms/diagrams. (3,2,5)
- VII. a) Explain GSM Architecture in detail and list its various interfaces used in GSM 900 MHz standard.
- b) Explain IS-95 CDMA Reverse Channel Modulation in detail? (2x5)

x-x-x