



CBCS SCHEME

15EC651

A U I T E C H I T

Sixth Semester B.E. Degree Examination, June/July 2019 Cellular Mobile Communication

Time: 3 hrs.

Max. Marks: 80

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Explain frequency reuse concept with the help of a neat diagram. (06 Marks)
- b. Explain how cell splitting and cell sectoring is used to improve the coverage and capacity in cellular systems with the help of a neat diagram. (10 Marks)

OR

- 2 a. Explain free space model with the help of equations. If a transmitter produces 50Watts of power, express the power in units of i) dBM and ii) dBW. If a 50Watts of power is applied to a unity gain antenna with a 900 MHz carrier frequency, find the received power in dBM at a free space distance of 100mts from the antenna. What is the received power P_r (10km)? Assume unit gain for the received antenna. (08 Marks)
- b. Explain Okumara and hata outdoor propagation models. (08 Marks)

Module-2

- 3 a. Explain Doppler shift. Consider a transmitter which radiates a sinusoidal carrier frequency of 1850MHz. For a vehicle moving 60mph, compute the received carrier frequency if the mobile is moving i) directly towards the transmitter ii) directly away from the transmitter iii) in a direction which is perpendicular to the direction of arrival of the transmitted signal. (08 Marks)
- b. Explain the working of spread spectrum sliding correlator channel sounding system with the help of neat diagrams. Also, list its advantages and disadvantages. (08 Marks)

OR

- 4 a. Explain Clarke's model for flat fading with relevant equations. (08 Marks)
- b. What is small scale fading? Explain the different types of small scale fading. (08 Marks)

Module-3

- 5 a. Explain the GSM system architecture with the help of neat diagram. (08 Marks)
- b. Explain the traffic and signaling channels in detail for GSM system. (08 Marks)

OR

- 6 a. Explain protocol architecture of GSM-signalling plane in detail with the help of a neat diagram. (08 Marks)
- b. Explain channel coding and GSM speech coder with the help of simplified block diagram. (08 Marks)

Module-4

- 7 a. Explain GPRS system architecture and interfaces with the help of a neat diagram. (08 Marks)
- b. Explain Multimedia Messaging Service Network Architecture (MMSNA) with the help of a neat diagram. (08 Marks)

OR

- 8 a. Explain location registration procedure used in GSM. (08 Marks)
b. Explain GPRS protocol architecture for transmission plane with the help of a neat diagram. (08 Marks)

Module-5

- 9 a. Explain CDMA-2000 wireless system with the help of a neat diagram. (08 Marks)
b. Explain the different types of CDMA handoff with neat diagrams. (08 Marks)

OR

- 10 a. Explain CDMA mobile initialization and call establishment procedure with various states. (08 Marks)
b. Explain the generation of the CDMA forward traffic/power control channel for 9.6 kbps. (08 Marks)
