

B.Tech IV Year I Semester (R13) Regular Examinations November/December 2016

WIRELESS COMMUNICATION

(Electronics and Communication Engineering)

Time: 3 hours

Max. Marks: 70

PART – A

(Compulsory Question)

- 1 Answer the following: (10 X 02 = 20 Marks)
- Define wireless communication systems with examples.
 - What are the features of 3G wireless communication systems?
 - Mention the basic propagation mechanism, which impact propagation in mobile communication.
 - What are the various outdoor propagation models?
 - How Clarke's model differs from Jake's model?
 - What are the advantages of RLS algorithm over LMS algorithm?
 - What is a diversity receiver and write its advantages?
 - Explain the concept of TDMA scheme.
 - How FDM differs from OFDM?
 - What are the challenges in multicarrier systems?

PART – B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

- 2 (a) Explain the evolution of wireless communication systems with examples.
(b) Give the comparison of 1G, 2G, 2.5G and 3G wireless cellular systems.
- OR**
- 3 (a) Explain how the coverage and capacity can be improved in cellular systems
(b) Define trunking and grade of service. What are the factors to be considered in deriving grade of service?

UNIT – II

- 4 Explain with neat diagrams the propagation mechanisms that exist in mobile radio propagation and what are the models used to overcome.

OR

- 5 (a) Explain different classification of small scale fading.
(b) Derive the expression for two ray Rayleigh fading model.

UNIT – III

- 6 (a) Explain the necessity of equalizers. With a neat diagram discuss linear transversal equalizers.
(b) Discuss on RLS algorithm and give its applications.

OR

- 7 (a) Explain with diagram the Rake receiver.
(b) Discuss on Transmit diversity.

UNIT – IV

- 8 (a) What are the advantages of multiple access techniques?
(b) Give the block diagram of a CDMA system using BPSK modulation scheme & explain the importance of each block. If a spreading code $\{C\} = \{1, 1, 1 - 1, -1, 1, -1\}$ is given, draw the spreaded waveform before modulation when data bits are $\{1 0 1 1\}$.

OR

- 9 (a) Explain with neat diagram the transmission of wireless and fixed telephone networks.
(b) Explain the traffic routing in wireless networks for different wireless data services.

UNIT – V

- 10 Discuss on Multicarrier modulation and their applications.
- OR**
- 11 With a neat block diagram explain in detail the OFDM (both transmitter and receiver).
