Reg. No. : | | | | | | | | | | | | |

Question Paper Code: 1067078

B.E. / B.Tech. DEGREE EXAMINATIONS, NOV/ DEC 2024
Seventh Semester
Electronics and Communication Engineering
U20EC701– BROADBAND WIRELESS COMMUNICATIONS
(Regulation 2020)

Time: Three Hours | Maximum: 100 Marks

Answer ALL questions

PART – A (10 x 2 = 20 Marks)

1. What is a handoff in cellular communication?

2. Write the challenges in wireless communication.

3. Differentiate between indoor and outdoor channels in wireless communication?

4. Define large-scale path loss.

5. Identify the main purpose of a cyclic prefix in OFDM.

6. What is PAPR? And why is it a concern in OFDM systems?

7. Distinguish between linear and non-linear equalization.

8. What is Zero Forcing (ZF) equalization?

9. What is beamforming in MIMO systems?

10. Write some applications of MIMO systems.

PART – B (5 x 16 = 80 Marks)

11. (a) (i)Explain the Basics of Wireless Communication and Its Impact on Society. (8)
(ii) Discuss the Major Technical Challenges Faced in Wireless Communication. (8)

(OR)

(b) (i) Compare the multiple access techniques FDMA and TDMA. (8)
(ii) Describe the Cellular Architecture and the Concept of Frequency Reuse. (8)

12. (a) Illustrate Small-Scale Fading and the Different Types of Fading in Wireless Channels. (16)

(OR)

(b) (i) Describe Large-Scale Path Loss and Its Common Models in Wireless Communication. (8)
(ii) Discuss the Parameters and Statistical Models of Mobile Multipath Channels. (8)

13. (a) Examine the principle of MSK modulation and derive the expression for power spectral density. (16)

(OR)

(b) (i)Explain the Structure of a Wireless Communication Link and Its Components.(8)
(ii)Discuss Linear and Constant Envelope Modulation Techniques Used in Wireless Communication. (8)

14. (a) Describe linear and Non Linear equalization techniques in detail. (16)

(OR)

(b) Describe the Working Principle of a Rake Receiver and Its Role in Fading Channels. (16)

15. (a) (i) Explain the Types of MIMO Systems and Their Benefits in Wireless Communication. (8)
(ii) Write a short note on beam forming and spatial multiplexing. (8)

(OR)

(b) Analyze the Performance of Space-Time Trellis Codes and Their Advantages in Fading Channels. (16)

-------xxx-------