Reg. No. : | E | N | G | G | T | R | E | E | . | C | O | M |

Question Paper Code : 50966

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2024.

Fifth Semester

Electronics and Communication Engineering

EC 3501 — WIRELESS COMMUNICATION

(Regulations 2021)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define Handoff.

2. What do you mean by cell splitting?

3. Define small scale fading.

4. Define coherence bandwidth.

5. Give the expression of MSK.

6. Brief on Pseudo noise sequence.

7. What is the significance of multiple access techniques?

8. Mention the features of SDMA.

9. Give the functions of PSTN.

10. What do you mean by UMTS?

PART B — (5 × 13 = 65 marks)

11. (a) Discuss in detail about the strategies and practical considerations of hand off.

Or

(b) Write short notes on (i) Cell splitting (ii) Sectoring.   (6+7)

12. (a) (i) Explain in detail about free space propagation model. And also calculate the path loss. (7)

       (ii) Given that the coherence bandwidth is approximated by the equation show when a flat fading channel occurs. (6)

Or

(b) Analyze the fading effects due to multipath time delay spread in small scale fading.

13. (a) (i) Enumerate the factors that influence the choice of digital modulation. (7)

       (ii) Write short notes on equalization. (6)

Or

(b) Summarize about the importance of diversity methods used for the mitigation interference in multipath propagation model.

14. (a) (i) Explain in detail about CDMA Technique. (7)

       (ii) Explain the channel capacity of CDMA in cell system in detail. (6)

Or

(b) (i) Explain in detail about TDMA Technique. (7)

       (ii) Compare and Contrast TDMA, FDMA and CDMA techniques. (6)

15. (a) Write short notes on

       (i) Packet Reservation Multiple Access (PRMA) (7)

       (ii) Generations of wireless networks. (6)

Or

(b) Compare and contrast the circuit and packet switching for PCN.

PART C — (1 × 15 = 15 marks)

16. (a) (i) Explain spread spectrum multiple access techniques. (7)

       (ii) For the given path loss $n = 3$, find the frequency reuse factor and the cluster size that should be used for maximum capacity. The minimum signal to interference ratio required is 15dB. (8)

Or

(b) Assess why constant envelope modulation schemes such as MSK and GMSK are used in a wireless communication system? Compare and contrast these two modulation techniques. (15)

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