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Question Paper Code : 80461

B. E. /B. Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2021.

Seventh Semester

Electronics and Communication Engineering

EC 2401/EC 71/10144 EC 701– WIRELESS COMMUNICATION

(Regulations 2008/2010)

(Common to PTEC 2401– Wireless Communication for B. E. (Part-Time) –

Sixth Semester –Electronics and Communication Engineering– Regulations 2009)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1.   What is flat fading?

2.   Define signal to self-interference ratio.

3.   Define Co-channel Interference.

4.   Define Coherence time.

5.   Give the expression for bit error probability of Gaussian Minimum shift keying modulation.

6.   What is fading and Doppler spread?

7.   Define: Hamming distance.

8.   State the principle of diversity.

9.   Characterize the effects of multipath propagation on Code Division Multiple Access.

10.   What are the basic channels available in GSM?

PART B — (5 × 16 = 80 marks)

11. (a) Discuss the types of services, requirements, spectrum limitations and noise considerations of wireless communications. (16)

Or

(b) Explain the principle of Cellular Networks and various types of Handoff techniques. (16)

12. (a) (i) How the received signal strength is predicted using the free space propagation model? Explain. (10)

(ii) Find the far-field distance for an antenna with maximum dimension of 1 m and operating frequency of 900 MHz. (6)

Or

(b) (i) With system theoretic description explain the characteristics of Time-Dispersive channels. (8)

(ii) Explain the three basic propagation mechanisms in a mobile communication system. (8)

13. (a) (i) Explain the principle of π/4 - Differential Quadrature-Phase Shift Keying from a signal space diagram. (8)

(ii) Derive the expression for probability of error in Flat-Fading channels. (8)

Or

(b) (i) Explain the principle of Minimum Shift Keying (MSK) modulation and derive the expression for power spectral density. (8)

(ii) Derive the expression for probability of error in Frequency-Dispersive Fading channels. (8)

14. (a) Explain in detail about Space diversity with necessary diagrams. (16)

Or

(b) Derive the LMS Algorithm for an Adaptive Equalizer. (16)

15. (a) Examine about the effects of multipath propagation on CDMA. (16)

Or

(b) (i) Illustrate the block diagram of IS-95 transmitter. (8)

(ii) Give a detailed description of OFDM transceiver. (8)

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