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Question Paper Code : 60467

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2016.

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 — ($10 \times 2 = 20$ marks)

1. Define : Frequency reuse.

2. State the operating principle of adhoc networks.

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. Assume four branch diversity is used, where each branch receives an independent Rayleigh fading signal. If the average SNR is 20 dB, determine the probability that the SNR will drop below 10 dB. Compare this with the case of a single receiver without diversity.

8. Define coding gain.

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) Explain the time-variant two-path model of a wireless propagation channel. (8)

(ii) Brief about the properties of Rayleigh distribution. (8)

Or

(b) (i) Explain the narrow band modeling methods for Short scale fading and Long scale fading. (10)

(ii) Brief about the properties of Nakagami distribution. (6)

13. (a) (i) Briefly explain the structure of a Wireless communication link. (6)

(ii) With block diagram, explain the MSK transmitter and receiver. Derive an expression for MSK and its power spectrum. (10)

Or

(b) Derive an expression for :

(i) M-ary phase shift keying and (8)

(ii) M-ary quadrature amplitude modulation.

Also derive an expression for their bit error probability. (8)

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

Or

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

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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