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Question Paper Code : 71467

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2015.

Seventh Semester

Electronics and Communication Engineering

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

(Regulation 2008/2010)

(Common to PTEC 2401 — Wireless Communication for B.E. (Part-Time)
Sixth Semester — ECE — Regulation 2009)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. State the differences between small-scale fading and large-scale fading.
2. Mention a few techniques used to expand the capacity of a cellular system.
3. Interpret Snell's law.
4. List the properties of wideband channels.
5. Comment on the necessity of a Gaussian filter in GMSK.
6. List the advantages of digital modulation techniques.
7. What do you mean by transmit diversity?
8. Write about MMSE decision feedback equalizer.
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) (i) Elaborate about the factors which influence small-scale fading. (8)
(ii) Comment on the different types of services in detail. (8)
Or
(b) (i) Discuss about the constructive and destructive interference in detail. (8)
(ii) Give details about the causes for Inter Symbol Interference. How can ISI be eliminated? (8)

12. (a) (i) Explain in brief about the three propagation mechanisms which have impact on propagation in a mobile environment. (8)
- (ii) Define Brewster angle. Calculate the Brewster angle for a wave impinging on a ground having permittivity, $\epsilon_r = 4$. (8)

Or

- (b) In detail explain about channel classification. (16)
13. (a) (i) Express the structure of a wireless communication link in detail. (6)
- (ii) Demonstrate the generation, detection and bit error probability of QPSK scheme. (10)

Or

- (b) (i) How MSK signals are generated. Explain in detail. (8)
- (ii) Discuss in detail the demodulation techniques for Minimum Shift Keying. (8)
14. (a) Write short notes for the following :

- (i) Spatial diversity (4)
- (ii) Temporal diversity (4)
- (iii) Polarization diversity (4)
- (iv) Macrodiversity. (4)

Or

- (b) (i) Explain in detail about linear equalizers. (8)
- (ii) With suitable diagrams, explain channel coding and speech coding techniques. (8)
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)