

BT-8/M06

9451

Wireless and Mobile Communication (2004-05)

Paper : ECT-406

Time : Three Hours]

[Maximum Marks : 75

Note :- Attempt any FIVE questions in all, Questions No. 1 is compulsory. In addition, attempt ONE question from each of the FOUR sections.

SECTION-I

1. (a) Draw the Fundamental layout of Jake's channel model and give its applications.
- (b) Define coherence time and give its significance in wireless propagation.
- (c) Compare FDMA and TDMA.
- (d) Categorize various services offered by GSM.
- (e) Explain log-distance path loss model. 3×5

SECTION-II

2. (a) What is pathloss attenuation ? Discuss one outdoor pathloss model in detail. 8
- (b) Draw the basic layout of radio wave propagation in free space and discuss the effect of doppler spread. 7
3. (a) What is shadowing ? How is it represented by a pathloss model ? 5
- (b) Categorize various types of fading losses in radiowave propagation. How is delay spread used in estimating effects of fading ? 10

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Contd.

SECTION-III

4. What are different digital modulation techniques used in mobile communication? Discuss the factors affecting the choice of modulation technique. Explain linear modulation techniques in brief. 15
5. (a) What is need of diversity techniques in mobile communication? How is Rake demodulator used to implement diversity techniques? 10
(b) Explain the schematic architecture of TDMA used in mobile communication. 5

SECTION-IV

6. What is handover in mobile communication? Mention various scenarios which result in handover. Explain diagrammatically the complete process of handover. 15
7. Explain the design methods of hexagonal cellular structure. Consider the concept of interference for cell size and frequency reuse factor determination. Also explain the effect of cluster size on system efficiency. 15

SECTION-V

8. What are IMT-2000 standards? How are these different from 2G and 3G standards? Also explain the network architecture of IMT-2000. 15
9. Draw a sequence diagram of mobile call control for mobile originated and mobile terminated calls. 15