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Question Paper Code : 20335

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2012.

Seventh Semester

Information Technology

IT 2402 — MOBILE COMMUNICATION

(Regulation 2008)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is the motivation for a specialized MAC?
2. Draw a model to illustrate the effect of hand off.
3. Why cannot wireless LANs implement CSMA/CD?
4. Why is WiMAX forum formed?
5. List the standards similar to GSM.
6. Draw the GPRS transport plane.
7. Write the merits of transaction oriented TCP.
8. How do you classify TCPs?
9. When is one environment said to be application environment.
10. What does WAP specification include?

11. (a) (i) If a SIR of 15 dB is required for satisfactory forward channel performance of a cellular system what is the frequency reuse factor and cluster size that should be used for maximum capacity if the path loss exponent is $n=4$? Assume that there are six co-channel cells in the first tier and all of them are at the same distance from the mobile. Use suitable approximations. (10)
- (ii) Compare the characteristic features of FDMA, TDMA and CDMA mechanisms. (6)

Or

- (b) (i) An urban area has a population of two million residents. Three competing trunked mobile networks (system A, B and C) provide cellular service in this area. System A has 394 cells with 19 channels each, system B has 98 cells with 57 channels each and system C has 49 cells with 100 channels each. Each user averages two calls per hour at an average call duration of three minutes. Assuming that all three trunked systems are operated at maximum capacity, compute the percentage market penetration of each cellular provider. The total carried traffic is 12 Erlangs, 45 Erlangs and 88 Erlangs for system A, system B and system C respectively. (12)
- (ii) List the various performance metrics used to make the decision with reference to handoff. (4)
12. (a) (i) With a suitable diagram explain the extended service set. (8)
- (ii) Draw the schematic for physical layer of IEEE 802.11 infrared and explain. (8)

Or

- (b) List the two MAC sublayers defined by IEEE 802.11 standard and explain. (16)
13. (a) Explain the reference architecture of GSM. (16)

Or

- (b) Explain the network services of GPRS and mobility support in GPRS. (16)
14. (a) (i) What are the three TDMA upgrade options for evolution to 2.5 G TDMA standards? Explain and distinguish between them. (12)
- (ii) List the steps for TCP adaptation. (4)

Or

- (b) Explain the goals, assumptions and requirements of mobile IP. (16)

15. (a) Give the architecture of WAP and explain the function of each block. (16)
- (b) Explain the parameters of transaction and session protocols. (16)

Or

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