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Question Paper Code : 71196

M.E./M.Tech. DEGREE EXAMINATION, JUNE/JULY 2013.

Elective

Computer Science and Engineering

CS 9251/CS 951 – MOBILE COMPUTING

(Common to M.E. Software Engineering, M.E. Network Engineering,
M.E. Computer Networks, M.E. Computer Networking and Engineering and
M.Tech. Information Technology)

(Regulation 2009)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What limits the number of simultaneous users in a TDM/FDM system compared to a CDM system?
2. What is the main reason for the failure of many MAC schemes of wired networks in wireless networks?
3. Why is a new infrastructure needed for GPRS and not for HSCSD?
4. What multiplexing schemes are used in GSM and for what purpose?
5. Why is the physical layer of IEEE802.11 WLAN subdivided?
6. What are the differences between infrastructure based and ad-hoc networks regarding roaming?
7. Why is routing in multi-hop ad-hoc networks complicated?
8. What is the need for reverse tunneling?
9. What are the advantages of statelessness of HTTP?
10. Name the advantages and disadvantages of user acknowledgments in WTP.

PART B — (5 × 16 = 80 marks)

11. (a) (i) What are the main problems of signal propagation? Explain. (8)
(ii) Explain the ways to mitigate narrow band interference. (8)

Or

- (b) Compare the various TDMA variants in terms of operation complexity, access delay and / bandwidth. (16)
12. (a) (i) Draw the GSM TDMA frame and explain the various channels and their necessity. (9)
(ii) What are the typical steps for handover on GSM network? (7)

Or

- (b) (i) List the steps involved in performing a GSM mobile terminated call. Specify the use of the various identifiers in performing the call. (10)
(ii) Explain the use of the GPRS support nodes in delivering data traffic. (6)
13. (a) Compare IEEE802.11, Bluetooth and HIPERLAN with regard to their ad-hoc capabilities, fairness problems regarding channel access and power saving mechanisms. (16)

Or

- (b) With necessary timing diagrams explain the services of MAC management layer of IEEE802.11. (16)
14. (a) (i) Explain the operation of Dynamic Source Routing with an example. (7)
(ii) Explain the packet flow if two mobile nodes communicate and both are in foreign networks. (9)

Or

- (b) Show the interaction of Mobile IP with standard TCP. Draw the packet flow from a fixed host to a mobile host via a foreign agent. Then a handover takes place. What are the actions of Mobile IP and how does TCP react? (16)
15. (a) Show the interaction of Mobile IP with standard TCP. Draw the packet flow from a fixed host to a mobile host via a foreign agent. Then a handover takes place. What are the actions of Mobile IP and how does TCP react? (16)

Or

- (b) (i) Which mechanisms of TCP influence the efficiency in mobile environment? Explain. (8)
(ii) How does I-TCP isolates the problems on the wireless link? What are the main drawbacks of this solution? (8)