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Question Paper Code : 90443

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2022.

Sixth Semester

Electronics and Communication Engineering

EC 8004 – WIRELESS NETWORKS

(Regulations 2017)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Draw the layered model of Broadband Radio Access Network.

2. Why is IEEE 802.15.4 called Low-rate WPAN?

3. Enumerate the difference between routing in a wired network and adhoc wireless network.

4. How does TTL affect a packet in transit?

5. Draw the UMTS architecture.

6. How does UMTS support different user data rates?

7. What are the advantages of LMDS?

8. Illustrate session mobility using an example.

9. What are the features of 4G mobile network?

10. Briefly comment on the role of Multicarrier modulation on 4G technologies .

PART B — (5 × 13 = 65 marks)

11. (a) (i) Using necessary diagrams explain IEEE 802.11 protocol architecture. (8)

(ii) What are the requirements for handover in WATM environment? (5)

Or

(b) (i) Using necessary diagrams explain Bluetooth architecture. (8)

(ii) Comment on IEEE 802.15.4 and its super frame mode. Also explain how the MAC layer of IEEE 802.15.4 is different from that of Bluetooth. (5)

12. (a) Explain how a correspondent node can send an IP packet to mobile node. Also explain how a mobile node finds a foreign agent when it moves into another network and the subsequent process of registration. Use suitable diagrams. (13)

Or

(b) List out the difference between traditional wired networks and adhoc networks. Give the reasons why traditional routing algorithms are not preferred for mobile adhoc networks. (13)

13. (a) Using suitable diagrams explain UMTS core network architecture (13)

Or

(b) Using suitable diagram explain the l_u and l_{ur} interface of UTRAN (13)

14. (a) Explain the GIF/RAI discovery procedure the associated signaling. Briefly explain the new interfaces in the loose coupling of WLAN-GPRS integration. (13)

Or

(b) What is MMDS and how is it different from LMDS? (13)

15. (a) How is fourth generation wireless network different from third generation wireless network? Also explain the key challenges in 4G and the proposed solution. (13)

Or

(b) What are smart antenna techniques and how does it benefit the fourth-generation wireless neworks? (13)

PART C — (1 × 15 = 15 marks)

16. (a) (i) Draw and explain the protocol stack of HiperLAN2 and how a PSDU is transmitted in HiperLAN2. (10)

(ii) Suppose that two Mobile Nodes (MN) belonging to different networks meet at a point and separated by few meters wanted to communicate with each other. Comment on how the packets might travel. Will this be feasible? If not explain how this communication can be optimized? (5)

Or

(b) What is tunneling in mobile IP and discuss about the diverse ways of achieving this and comment on the scalability of each. (15)

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