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Question Paper Code : 10456

M.E./M.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2023.

Second Semester

Communication Systems

CU 4202 – ADVANCED WIRELESS NETWORKS

(Regulations 2021)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. State the major difference between LTE and LTE-A.

2. State the principle of scale-free network.

3. What is Vertical handoff ?

4. List the various data associated with the PDP context.

5. What are the services supported by link layer?

6. State the difference between link state routing and distance vector routing.

7. Name the factors on which the Cellular Residence Time (CRT) depends on.

8. What are the two broadly used methods in prioritizing Handoff ?

9. What are the consequences of Network Congestion in Wireless IP networks?

10. What are the four QoS classes?

PART B — (5 × 13 = 65 marks)

11. (a) (i) Explain small world network and its properties.   (6)

    (ii) Deduce the expressions for number of non lattice edges, average path length and clustering coefficient of a regular ring lattice network.   (7)

Or

    (b) (i) Explain the salient features of IEEE 802.11.   (6)

    (ii) Explain wireless network connectivity.   (7)

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12. (a) (i) Explain Evolved Universal Terrestrial Radio Access Network (E-UTRAN). (6)

    (ii) Explain circuit switched domain and packet switched domain in core network. (7)

Or

(b) Explain the following 3G PP Technical specification groups:

    (i) TSG GERAN (GSM EDGE Radio Access Network), (6)

    (ii) TSG RAN (Radio Access Network). (7)

13. (a) (i) Explain the adaptive Hybrid ARQ scheme for wireless links. (6)

    (ii) Explain routing with topology aggregation. (7)

Or

(b) (i) Explain any one data aggregation model for Wireless Networks. (6)

    (ii) Explain stochastic learning link layer protocol. (7)

14. (a) Discuss in detail about Handoff prioritization techniques in Cellular systems.

Or

(b) (i) Describe the various distributions of Cell Residence Time(CRT). (6)

    (ii) Explain Mobility prediction and its significance in Pico and Micro Cellular Networks. (7)

15. (a) (i) Describe the QoS Management architecture. (6)

    (ii) What are the QoS management functions for end-to end IP QoS in UMTS Networks. (7)

Or

(b) (i) What is an EPS bearer in LTE Network? Explain. (6)

    (ii) Explain the various QoS service attributes. (7)

PART C — (1 × 15 = 15 marks)

16. (a) Demonstrate the 3GPP conceptual network architecture.

Or

(b) Devise simple mobility management models for IP and 3GPP. Compare them.

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