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Question Paper Code : 50460

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

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. Write the significance of the special control packets in IEEE 802.11

2. Determine the need of 250 ohms resistor in HART protocol.

3. How does Foreign Agent help mobile network during its visit to foreign network?

4. Which layer is CoAP in IoT?

5. What are the elements of UTRAN architecture?

6. What are the enhancements over existing IS – 95 / J – STD – 008 wireless system?

7. Name the generic approaches of internetworking.

8. Define the term multipoint in Local Multipoint Distribution Service.

9. Mention the features and challenges of 4G.

10. State the issues in terminal mobility.

PART B — (5 × 13 = 65 marks)

11. (a) Present the protocol architecture and categorize the data transfer types of Wireless Universal Serial Bus (WUSB).

Or

(b) Illustrate the four different network types and layered Model of BRAN wireless access network.

12. (a) What is the purpose of Session Initiation Protocol and explain how it works in a VoIP call?

Or

(b) Evaluate the process of route establishment and route maintenance in Destination Sequence Distance Vector Routing protocol for adhoc networks.

13. (a) Describe the following CDMA 2000 Radio and Network components platforms: (i) Packet Data Serving Node (PDSN), (ii) Home Location Register (HLR), (iii) Base Transceiver Station (BTS). (5+4+4)

Or

(b) Draw the architecture of Generic TD – SCDMA network and explain.

14. (a) Outline the WLAN adaptation function (WAF) in tight coupling architecture and explain with an appropriate diagram.

Or

(b) (i) Illustrate the MMDS system for digital video and wireless internet. (8)

(ii) Summarize the functional operations of MMDS. (5)

15. (a) Explain the structure and compare the different smart antenna techniques used for wireless communication systems.

Or

(b) Determine the multicarrier modulation scheme adopted in 4G system, explain the working procedure of the scheme with necessary diagram.

PART C — (1 × 15 = 15 marks)

16. (a) (i) Elaborate the PHY packet formats of IEEE 802.11b and IEEE 802.11a. (10)

(ii) Consider an OFDM system that uses 52 subcarriers out of which 48 are data sub – carriers and 4 are pilot sub carriers. System bandwidth is 20MHz and OFDM symbol duration including cyclic prefix with guard interval for ISI mitigation is 4 μS. If code rates is ¾ and 64 QAM is used, what is the data rate? (5)

Or

(b) (i) Describe the features of WLAN coupling points using the GPRS reference diagram. (8)

(ii) Develop a system description for a tight coupling in an internet working between WLAN and GPRS. (7)