10EC81

Eighth Semester B.E. Degree Examination, Aug./Sept. 2020
Wireless Communication

Time: 3 hrs.   Max. Marks:100

Note: *Answer FIVE full questions, selecting atleast TWO questions from each part.*

PART – A

1   a. Describe with a neat flow diagram, the different steps involved in AMPS network operations for a mobile–originated call. **(10 Marks)**
    b. Explain AMPS handoff operation using various control messages, with the help of message sequence chart. **(10 Marks)**

2   a. Explain with neat diagram the various hardware elements used to realize a cellular system. **(08 Marks)**
    b. Explain briefly the function of following terms :
        i)   Visitor location register
        ii) Gated MSC (GMSC)
        iii) Billing gateway (BGW)
        iv) IMSI. **(12 Marks)**

3   a. Explain the capacity expansion techniques : cell sectoring and cell splitting. **(08 Marks)**
    b. Write a brief note on Lee's microcell technology. **(05 Marks)**
    c. Explain the concept of frequency reuse for cellular system. Determine the frequency reuse distance for a mobile system of cluster size and cell radius is 5km. For the same cell radius, find the cluster size if the reuse distance is 17.32km. **(07 Marks)**

4   a. Explain GSM traffic and control signal burst. **(10 Marks)**
    b. Discuss the frame format of GSM, hyper frame, super frame, multi-frame and TDMA frame. **(10 Marks)**

PART – B

5   a. With a neat diagram, explain GSM Intra BSC and inter-BSC handover. **(12 Marks)**
    b. Explain with neat flow diagram the authentication and ciphering mode operation in GSM cell setup operation. **(08 Marks)**

6   a. Explain the basic spreading procedure used on CDMA forward channels. Mention the four types of logical channels in forward direction used in IS-95 CDMA system. **(10 Marks)**
    b. Explain the following terms briefly in case of CDMA system.
        i) Softer hand off   ii) Soft softer hand off. **(06 Marks)**
    c. Explain with a neat flow diagram the mobile originated call timeline in CDMA system. **(04 Marks)**

7   a. Define OFDM. Briefly explain an OFDM modulation system. **(08 Marks)**
    b. Briefly explain the spread spectrum modulation techniques : FHSS and DSSS. **(06 Marks)**
    c. With a neat diagram, explain the RAKE receiver. **(06 Marks)**

8   a. List three fundamental ways in which wireless LANS and wireless PANS differ from each other. **(06 Marks)**
    b. Explain the architecture of a Bluetooth/WPAN with a diagram. **(08 Marks)**
    c. Describe briefly the basic wireless MAN. **(06 Marks)**

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