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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)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
 2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.