

Code No: C9304

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

M.Tech I - Semester Examinations, March/April-2011

WIRELESS COMMUNICATIONS AND NETWORKS

(SYSTEMS AND SIGNAL PROCESSING)

Time: 3hours

Max. Marks: 60

Answer any five questions  
All questions carry equal marks

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- 1.a) Describe the evolution of wireless radio communication systems.
- b) If 20 MHz of total spectrum is allocated for a duplex wireless FDD cellular telephone system and each simplex channel has 25 KHz RF bandwidth, find:
  - i) The number of duplex channels.
  - ii) The total number of channels per cell site, if  $N = 4$  cell reuse factor is used. [12]
- 2.a) Explain the following types of spread spectrum multiple access techniques.
  - i) FHMA
  - ii) CDMA.
- b) Determine the maximum throughput that can be achieved using ALOHA and slotted ALOHA protocols. [12]
- 3.a) Differentiate between wireless and fixed telephone networks.
- b) List out the main features of various generations of wireless networks. [12]
- 4.a) Explain the common channel signaling network architecture.
- b) Describe an integrated services digital network with the help of block diagram. [12]
- 5.a) Explain how a mobile IP node uses discovery procedure to identify prospective home agents and foreign agents.
- b) Describe transaction classes of wireless transaction protocol. [12]
- 6.a) Explain the applications of wireless LANs.
- b) Describe IEEE 802.11 architecture. [12]
- 7.a) Give brief notes on data oriented CDPD Network.
- b) Explain briefly the operation of mobile application protocol. [12]
8. Write short notes on the following
  - a) Ad-hoc wireless networks
  - b) MAC protocol in Ad-hoc wireless networks. [12]

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