

Code No: C9304

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
M.TECH I - SEMESTER EXAMINATIONS, APRIL/MAY-2012
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) Explain the system-generated cellular interference in cellular radio systems.
- b) If a signal-to-interference ratio of 15 dB is required for satisfactory forward channel performance of a cellular system, what is the frequency reuse factor and cluster size that should be used for maximum capacity if the path loss exponent is (i) $n = 4$, (ii) $n = 3$
Assume that there are six co-channel cells in the first tier, and all of them are at the same distance from the mobile. Use suitable approximations.
2. What is duplexing and multiple access? Explain different types of multiple access techniques.
- 3.a) List out the differences between wireless and fixed telephone networks.
- b) Explain the block diagram of a cellular system.
4. Explain Signaling System No.7(SS7) protocol in detail.
5. What is Mobile IP? Explain the discovery procedure used by a mobile node to identify Prospective home agents and foreign agents in Mobile IP.
6. Explain the following:
 - a) Infrared LANs
 - b) Spread Spectrum LANs
 - c) Narrowband Microwave LANs.
7. Explain the physical elements in the CDPD architecture. How mobility support is achieved in CDPD?
- 8.a) Discuss applications of ad-hoc wireless networks.
- b) Discuss the major issues to be considered for a successful ad-hoc wireless internet.

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