

Wireless Systems & Networks (DE-2.2, Dec-2007)

Note: Section A is compulsory. Attempt any four questions from Section-B and any two from Section-C.

Section-A

1. a) Describe how a cellular telephone call is made?
- b) Draw the block diagram of tapped delay line model.
- c) List the various classes of space diversity. What is the difference between selection diversity and feedback diversity?
- d) Give the four important features of FDMA.
- e) How you will differentiate pure ALOHA and slotted ALOHA?
- f) Draw the block diagram of an integrated services digital network.
- g) What are the factors which influences the use of packet switching technology?
- h) How are different channels within the forward link in an IS-95 system identified?
- i) For what reasons would the PACS version for the unlicensed PCS band use TDD instead of FDD?
- j) With focus on security, what are the problems of WLANs?

Section-B

2. Between pager, a cellular phone, and a cordless phone, which device will have the shortest battery life between charging? Why?
3. What is packet radio access technique? Differentiate pure ALOHA and slotted ALOHA.
4. A vehicle receives a 900 MHz transmission while traveling at constant velocity for 10s. The average fade duration for a signal level 10 dB below the rms level is 1 ms. How far does the vehicle travel during the 10s interval? How many fades does the signal undergo at the rms threshold level during a 10s interval? Assume that the local mean remains constant during travel.
5. What are the limitations of wireless networking? Explain the connection oriented services connectionless services used in the traffic routing of wireless traffic networks.
6. Draw the cellular packet switching architecture for a metropolitan area network and briefly explain it.

Section-C

7. Give the features and services of GSM. Explain the GSM system architecture and types of GSM channel types.
8. (a) Why would the ST tone in AMPS be useful to a service provider?
(b) Why does WATM only consider hard handover initially? What are the implications of the choice?
9. (a) Write short note on Wi-Fi technology.
(b) Why does wireless ATM specify a separate APCP? What could be the reason for separate APs?