B. Tech.
(SEM. VIII) EXAMINATION. 2006-07
WIRELESS COMMUNICATION

Time : 3 Hours] [Total Marks : 100

Note : All questions carry equal marks. Attempt all questions. Assume missing data, wherever necessary.

1 Attempt any four parts : \(5\times 4=20\)
   (a) Derive free space propagation model.
   (b) Discuss any one channel model, used for fading channel.
   (c) Which types of fading are created by multipath. Discuss the effects of them.
   (d) Consider GSM system, compute the received carrier frequency if a vehicle moving at 60 mph coming directly toward transmitter and going away from the transmitter.
   (e) Discuss time dispersion and frequency dispersion parameters of fading channel.
   (f) Which pdf are applicable for describing the mobile fading channel. Explain in brief.
2 Attempt any four parts of the following: 5×4=20
   (a) Discuss frequency domain speech coders in brief.
   (b) Which multiple access techniques are used in mobile communication. Explain with the help of example.
   (c) Define the terms in context with cellular communication - frequency, reuse, reusedistance signal to co-channel interference ratio.
   (d) What are the ways to improve coverage and capacity of cellular system. Discuss one in brief.
   (e) What is horizontal and vertical handoff ? Give the ways to handle handoff.
   (f) Compute the signal to co-channel interference ratio in worst case.

3 Attempt any two parts: 10×2=20
   (a) Draw and explain GSM signal processing block diagram.
   (b) Draw and explain GSM frame structure.
   (c) Name various codes used for error detection and error correction purpose for mobile communication. Discuss any one in detail.

4 Attempt any two parts of the following: 2×10
   (a) Draw the architecture of WLAN and explain in brief.
   (b) Write short note on ATM and IP.
   (c) Discuss MAC schemes used in WLAN.
Attempt any two parts of the following: 2x10

(a) Give the name and description of standards used for 3G cellular system.

(b) How handoff and power control is done in CDMA?

(c) Give block diagram and description of Earth station and transponder used for satellite communication.