MCSE/MCIT/MCTA–204(F)

M. Tech. (Second Semester)
EXAMINATION, August, 2008
(Common for CS, IT, CTA & SS Engg.)

MOBILE COMPUTING

(Elective—II)

Time : Three Hours

Maximum Marks : 100

Minimum Pass Marks : 40

Note : Attempt any *five* questions. All questions carry equal marks.

1. (a) What is Co-channel Interference and how it is optimised ?

   (b) Explain various methods for improving coverage and capacity in cellular system.

2. A hexagonal cell within a four-cell system has a radius of 1·387 kms. A total of 60 channels are used within the entire system. If the load per uses is 0·029 Erlangs and $\lambda = 1$ call/hour, compute the following for an Erlang C system that has a 5% probability of a delayed cell :

   (a) How many user per sq km will this system supports ?

   (b) What is the property that a delayed call will have to wait for more than 10 seconds ?

   (c) What is the probability that a call will be delayed for more than 10 seconds ?

3. (a) Explain the basic propagation mechanisms.

   (b) Briefly discuss basic propagation models.

4. (a) Briefly explain the paging function of a cellular system.

   (b) Explain mobile to mobile propagation.

5. (a) What is the cut-off frequency of the baseband, Gaussian Pulse-shaping filter used in the GSM System ?

   (b) Differentiate between mobile assisted hand off and soft hand off.

6. (a) List four significant factors which influence the choice of speech coders in mobile communication system ?

   (b) Explain GSM system architecture.

7. (a) Compute the longest time over which a mobile station would have to wait in order to determine the frame number being transmitted by a GSM base station.

   (b) Define the following terms :

   (i) SS7

   (ii) Mobile Agent

8. Write short notes on any *two* of the following :

   (a) CDMA

   (b) Mobility Management

   (c) Mobile