B. Tech.
(Sem. VIII) Examination, 2006-07
Mobile Computing

Time: 3 Hours] [Total Marks: 100

Notes: (1) Attempt all the questions. All questions carry equal marks.
(2) Use suitable diagram wherever necessary.

1. Attempt any four of the following: 4×5
   (a) Compare the palm OS and windows CE OS based devices.
   (b) Define mobile computing and explain its four-paradigms / principles.
   (c) What are the main problems in signal propagation? Why is reflection both useful and harmful?
   (d) List four differences in fixed-assigned multiple access and demand assigned multiple access schemes.
   (e) List factors responsible for making routing in Ad-hoc network difficult and explain each in brief.
   (f) Explain the type of the services offered by Bluetooth.
(g) If 40 MHz of total spectrum is allocated for a duplex wireless cellular system and each simplex channel has 50 kHz RF bandwidth, find number of duplex channels and the total number of channels per cell site, if N (no. of cells / cluster) = 4 cell reuse is used.

2 Attempt any two of the following: 2x10
   (a) What is the principal of frequency reuse in the context of cellular networks? Explain five ways of increasing the capacity of a cellular system.
   (b) Explain the various issues in mobile data management.
   (c) Explain how the following operations are handled in Coda file system:
      (i) Interprocess communication
      (ii) Disconnected operation.

3 Attempt any two of the following: 2x10
   (a) What is agent advertisement and discovery? Explain with neat and clean diagram the need of registration and registration process in mobile IP.
   (b) Apart from dropping packets due to a handover or higher bit error rates, the occurrence of lengthy and/or frequent disconnection is also a problem in mobile network. Explain, how Mobile TCP protocol overcomes this problem. Also list main advantages and disadvantages of this solution.
   (c) What is the use of pointer forwarding strategies? Explain any one such scheme.

VB–1050] 2 [Contd..
4 Attempt any two of the following: 2×10
(a) Discuss in brief the fault tolerance system design strategies used in mobile computing.
(b) What are mobile agents? Discuss their primary advantages over other approaches.
(c) What is the main purpose of Wireless Transaction Protocol (WTP)? Explain various classes of transaction services provided. With the help of suitable diagrams, also explain the working of the WTP class 2 services.

5 Attempt any two of the following: 2×10
(a) Discuss the applications ad hoc networks. Also explain why routing is difficult in ad hoc networks?
(b) Write short note on:
   (i) Fisheye State Routing (FSR)
   (ii) Destination Sequenced Distance-Vector (DSDV).
(c) Explain the salient characteristics of ad hoc networks and describe global state routing algorithm.