8E4024

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B. Tech. (Sem. VIII) (Main/Back) Examination, April/May - 2011
Information Technology
8IT4.2 Mobile Computing

Time : **3** Hours] [Total Marks : **80**
[Min. Passing Marks : **24**

Attempt any ***five questions****, selecting* ***one question*** *from* ***each unit****.* ***All*** *questions carry* ***equal*** *marks. (Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly, Units of quantities used/calculated must be stated clearly.*

Use of following supporting material is permitted during examination.
(Mentioned in form No. 205)

1. Nil 2. Nil

UNIT – I

1 (a) Suppose a mobile communication system uses only HLR. Illustrate the search and update operation in such a system. What is the effect of low cell residency time in such a system ? How to improve the probability of locating a mobile in such a system ?

2+2+3=7

(b) Explain the hands off procedures used in GSM and CDMA systems. Highlight the fundamental difference in the procedures used in each system.

4

(c) Define the term co-channel interference and path loss exponent for a path loss exponent of 4, find the frequency sense factor and the cluster size that should be used for maximum capacity. The signal to interference ratio of 15dB is minimum required for acceptable forward channel performance.

2+3=5

OR

1 (a) A spectrum of 30 MHz is allocated to a wireless FDD cellular system. Which uses 25 kHz simplex channels to provide full duplex voice and control channels. Compute the number of channels available per cell if a system uses (a) four cell sense (b) 7 - cell rense and (c) 12 - cell rense.

1×3=3

(b) In the above system, if 1 MHz of allocated spectrum is dedicated to control channels, determine an equitable distribution of control channels and voice channels in each cell for each of the three systems.

5

(c) Describe two registration area based location management schemes. Also compose the presented schemes.

UNIT – II

2 (a) Describe the medium access control in 802.11. How collisions are handled in 802.11 ? Explain.

8

(b) What are the limitations of TCP used in wired networks which make it unsuitable for wireless networks ? How these are addressed in wireless TCP ? Describe.

4+4=8

OR

2 (a) Draw a neat sketch of layered architecture of WAP. Describe the functions performed in each layer in brief.

3+5=8

(b) Why standard IP can not be used in mobile networks ? Explain.

4

(c) Explain operation of mobile IP. Why tunneling is used in mobile IP ?

4

UNIT – III

3 (a) Why data management is troublesome in mobile networks ? List the key issues involved.

6

(b) With the help of state transition diagram, explain architecture and working of code file system.

10

OR

3 (a) Justify need for disconnected operations in mobile environment. How data consistency is achieved in file systems using disconnected operations ?

3+5=8

(b) Write short note on little work file system. Also compare it with coda.

4+4=8

UNIT – IV

4 (a) How mobility affects transaction processing ? Explain.

4

(b) Describe two methods used for transaction processing and management in mobile environment.

6+6=12

OR

4 (a) Define the term "mobile agents".

2

(b) List the security threats present in mobile networks but not present in fixed networks.

6

(c) Explain architecture of a mobile agent. Also describe associated terms.

8

UNIT – V

5 (a) With the help of an example, explain the route discovery, data dilivery and route maintenance in networks using DSR based protocol.

10

(b) Differentiate between DSR and DSDV routing in mobile networks. **6**

OR

5 (a) How routing in (a) Adhoc networks and (b) Mobile networks using infrastructure is different from routing in fixed networks ? Explain. **6**

(b) Explain DSDV routing algorithm with specific explanation on the followiing points :

(i) Loop avoidance

(ii) Damping

(iii) Routing updates. **10**