CE1.5-R4: MOBILE COMPUTING

NOTE:

> 1. **Answer question 1 and any FOUR from questions 2 to 7.**
> 2. **Parts of the same question should be answered together and in the same sequence.**

Time: 3 Hours   **Total Marks: 100**

1.
a) What is a purpose of using broadcast_id and dest_sequence_# in AODV's Route Request packet?
b) What are the major problems that arise in network and transport layers when a mobile node (MN) accesses the Internet from a different network?
c) What are the problems with Traditional TCP in wireless environments?
d) Differentiate Soft handover with Hard handover.
e) If cells of area 36 squares Km are used, how many users can be supported with cluster sizes of 3 and 7?
f) Why is a new infrastructure needed for GPRS, but not for HSCSD? Which components are new and what is their purpose.
g) List out basic difference between wireless networks and fixed networks.

(7x4)

2.
a) Explain call processing in GSM.
b) What are the security threats to a MANET? Why a MANET faces greater security threats than a fixed infrastructure networks?

(10+8)

3.
a) Why is a new Mobile IP protocol (rather than existing IP Protocol) needed for wireless node? Draw the architecture for the working of Mobile IP protocol.
b) What is handover management? Explain Agent Discovery in Mobile IP.

(9+9)

4.
a) How does a supervisory host send TCP packets to the mobile node and to a fixed TCP connection in Mobile TCP? What are the pros and cons of Mobile TCP?
b) A cellular system uses frequency spectrum 1800 MHz to 1840 MHz for uplink channels and 1860 MHz to 1900 MHz for downlink channels respectively. Each channel takes 200 KHz and can be shared by 8 users. Each user needs one uplink and one downlink channel. How many users can be supported without frequency reuse in this cellular system?
c) Besides the number of users, what other major factor influences the decision on cluster size?
d) What is mobile terminal and wireless terminal?

(8+5+3+2)

5.
a) What are the features required in the file system for mobile computing system.
b) Explain following selective tuning techniques:
    i) Temporal Addressing
    ii) Broadcast Addressing
    iii) Index based method
c) What are the advantages and disadvantage of hoarding data at mobile device?

(8+6+4)

6.
a) Do Bluetooth devices and household microwave ovens interfere? Explain.
b) Palm OS is known as mobile operating system. What are the features of Palm OS?
c) Define the following term:
   i)   Exposed terminal
   ii)   Hidden terminal
   iii) Fast FHSS
   iv)   Scrambling Code
   v)   Walsh Code
   vi)   Paging channel

(6+6+6)

7.
a) Explain about the wireless application Environment (WAE) logical model.
b) What is profile? Is Mobile Information Development Profile (MIDP) a layer on top of CLDC?
c) Discuss following WML tags with parameter:
   i)   <anchor>
   ii)   <option>
   iii) <timer>

(6+6+6)