M. Tech. Distributed & Mobile Computing 1ˢᵗ Year 2ⁿᵈ Sem. - 2019
SUBJECT: Wireless and Mobile Protocols

Time: Three hours

Full Marks: 50

Instructions: Use separate answer scripts for each group.

GROUP -A
Answer question no. 1 and any two from the rest.

1. Write short notes on the following (any two) :   5X2=10
a) Bluetooth packet format
b) Power control modes in Bluetooth
c) Inter-frame spacings in IEEE 802.11
d) Unlicensed ISM band

2. a) Explain how two Bluetooth devices discover themselves in their proximity.
   b) What is Piconet and Scatternet? Is it necessary to form a Scatternet even if you have less
      than 8 devices? -Justify your answer.
   c) Can a device act as a master in more than one Piconets? Explain your answer.
   d) What is ZigBee?

                                                                  7+5+3+5=20

3. a) What do you mean by "Hidden Terminal Problem" and "Exposed Terminal Problem" of
      wireless communication system? Describe the solutions to these problems as specified in
      IEEE 802.11.
   b) List and briefly define the IEEE 802.11 services.
   c) If Bluetooth is a commercial success, what are the remaining reasons for the use of infrared
      transmissions for WLANs?

                                                                  (4+8)+5+3=20

4. a) What are the different frequency bands available for WiMAX standard?
   b) What is WiMAX forum?
   c) What is IEEE 802.16e?
   d) Compare and contrast WiMAX with Wi-Fi, 3G and optical fiber deployment scenarios.

                                                                  4+5+5+6=20

M.TECH DISTRIBUTED AND MOBILECOMPUTINGFIRST YEAR SECOND SEMESTER EXAM 2019

WIRELESS AND MOBILE PROTOCOLS
Part -II

Time: Full Marks: 50

Use separate **answer script** for each **Part/Group**.
Question no. 1 is mandatory and attempts any two from the rest
Make your answer brief and to-the-point.
Use illustrative diagrams wherever necessary.

1. a) State the limitations of *Mobile IPv4* (MIPv4).
   b) What is significance of using **duplicate address detection** method by *IPv6 address auto configuration* **protocol**? How it is done?
   c) State the advantages of network-based *mobility management* (MM) over host-based **MM**.
   $$3 + (3+1) + 3$$

2. a) Describe the *triangular routing problem* present in **MobileIPv4** protocol? Show how **Mobile IPv6 (MIPv6)** protocol overcomes this problem.
   b) "Mobile IPv6 route optimization can operate securely even without pre-arranged security associations" – explain it.
   c) Describe **reactive fast handover** procedure followed by *Fast MIPv6* protocol.
   $$(4+3) + 5 + 8$$

3. a) State the advantages of using *hierarchical mobile IPv6* (HMIPv6) protocol over standard **MIPv6** protocol. Specify the functions of *mobile anchor point*? What are **RCoA** and **LCoA**? How are they configured?
   b) Describe the handover procedure used by **HMIPv6** protocol.
   $$(3+3+2+2) + 10$$

4. a) "The performances of standard TCP degrade severely in wireless environment" – justify it.
   b) Describe the operation of **M-TCP** protocol and show how it can improve the performances of TCP in wireless environment.
   c) State the merits and demerits of **I-TCP** and **M-TCP** protocols.
   $$4 + (8+4) + 4$$