

M. Tech. Distributed & Mobile Computing 1st Year 2nd Sem. - 2018

SUBJECT: Wireless and Mobile Protocols

Time: Three hours

Full Marks : 100

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) LR-WPAN
 - b) SDP
 - c) Bluetooth specification
 - d) Bluetooth packet type

2. a) Explain the IEEE 802.11 system architecture.
b) What are the key advantages and disadvantages of infrared LANs?
c) Describe the MAC layer architecture and functionality for IEEE 802.11.
d) Discuss some applications of WLAN. [8+2+8+2=20]

3. a) How is it possible to combine frequency hopping (FH) and time division duplex (TDD) in Bluetooth? How does FH-CDMA differ from DS-CDMA?
b) List and briefly define L2CAP logical channels.
c) Describe the connection establishment mechanism in bluetooth.
d) What error correction schemes are used in Bluetooth baseband? [(2+2)+4+10+2=20]

4. a) Discuss the PHY layer frame structure and basic access methods for WiMAX.
b) What are the different sub-layers of MAC layer in WiMAX? Discuss the functionalities of each sub-layer.
c) Outline the downlink and uplink frame structures in WiMAX standard.
d) Describe the physical layer specifications for fixed and mobile WiMAX.
e) Wi-Fi and WiMAX may be the alternative solution for fixed broadband services in rural areas. Comment on this issue. [4+4+4+4+4=20]

**M.TECH DISTRIBUTED AND MOBILE COMPUTING FIRST YEAR
SECOND SEMESTER EXAM 2018**

**WIRELESS AND MOBILE PROTOCOLS
GROUP - B**

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. Attempts any one from the following questions (1×10)

a) Describe the **address autoconfiguration** mechanism used in **IPv6** protocol.

b) Describe the **congestion control** mechanism used by standard **TCP**.

10

2.

a) Why the data packets coming from correspondent node (CN) to mobile node (MN) incur extra delay in **Mobile IPv4**? How such extra delay can be reduced?

b) Describe **Mobile IPv6 (MIPv6) route optimization** procedure. If CN does not have **MIPv6** protocol support, then how the data traffics between MN and CN are exchanged?

(4+4) + (8+4)

3.

a) Describe **MIPv6 Predictive Fast Handover** procedure. How it is different from **MIPv6 Reactive Fast Handover**?

b) Describe the architecture of **Proxy MIPv6 (PMIPv6)** and provide an overview of **PMIPv6** protocol operation.

(8+2) + (5+5)

4.

a) Why the performances of standard TCP degrade severely in wireless/mobile environment? Discuss some approaches proposed in literature for improving TCP throughput in mobile environments.

b) Provide an overview of **Indirect TCP (I-TCP)** proposed for mobile hosts.

(5+5) + 10