Reg. No.										

प्रज्ञानं ब्रह्म

Manipal
INSPIRED BY LIFE

MANIPAL INSTITUTE OF TECHNOLOGY, MANIPAL 576104

(Constituent College of Manipal University)

SECOND SEMESTER M.Tech.(NETWORK ENGG.) DEGREE END SEMESTER EXAMINATIONS MAY-2016

SUBJECT: ELECTIVE IV-ADVANCED NETWORK TECHNOLOGY AND MANAGEMENT(ICT-544)

TIME: 3 HOURS **05/05/2016** **MAX. MARKS: 50**

Instructions to candidates

- **Answer any 5 FULL questions.**
- **All questions carry equal marks.**
- **Assume any missing data suitably.**

1A. For Wireless networks, CSMA/CD is not suitable in MAC layer. Why? With relevant schematic, show the operation of MACA protocol. Assume that the IEEE 802.11a (CSMA-CA with RTS-CTS) LAN is used in VANET. It operates at 20Mbps using OFDM. Use the following information to obtain the appropriate time parameters.

RTS frame size	20 bytes
CTS frame size	14 bytes
Acknowledge frame size	14 bytes
Data	2000 bytes
Slot time	9 microseconds
SIFS time	16 microseconds

Compute the delay incurred per message data unit.

1B. Mobility management is important in Adhoc networks. Design a sample Adhoc network of 10 nodes and apply the three mechanisms of mobility management as part of any reactive routing protocol.

1C. How is MPLS different from ATM ? What are its features?

[5+3+2]

2A. Draw the sketch of 8X8 Omega and Benes switch fabric. Compute the total number of cross points required in its design. Compare the features of these switches and identify the applications where these switches can be used.

2B. What are the merits of soft states and reservation styles of RSVP ? Devise a suitable reservation style for audio conference and video on demand.

2C. Discuss the benefits of explicit routing/traffic engineering of MPLS. How is it different from internet routing?

[5+3+2]

3A Consider a sample network and apply PNNI routing algorithm. Show the contents of Designated Transit List(DTL) and also explain the process of crank-back.

3B. Assume that you have a GPS receiver. Develop a procedure with APIs to trace a route on google map in real time.

3C. Suggest a supplement method to improve the accuracy of GPS receiver, especially implemented in position aware applications such as airplane landing and cruising. [5+3+2]

4A. What is the purpose of ATM adaptation layer? Explain the process of AAL5 used for Internet traffic. How is it different from AAL3/4?

4B. Show with an example that the positive stuff and negative stuff help in achieving synchronization in SONET.

4C. Select a suitable source and destination node in a sample network of 9 nodes and show the operation of OLSR.

[5+3+2]

5A. Show the steps involved in the SNMP manager request flow and the SNMP agent response flow. Consider a campus wide network of Manipal University. Assuming suitable parameters and its values, determine the maximum number of nodes a full-time management station can handle.

5B. HP open view is a commercial network management system and Integrates vendor-specific management with enterprise management system. Draw the block schematic of the Platform Architecture and explain the operation.

5C. What is the purpose of DSRC protocol? Discuss the EDCA and TCMA with respect to IEEE 802.11p.

[5+3+2]

6A. Show how 28 T-1 carrier can be carried as virtual tributaries in the STS-1 payload envelope. What are the advantages of ADMs and WDMs? WDM and SONET can create various logical topologies over a physical topologies. Discuss how WDM and SONET differ and explain what impact these differences have in the way the logical topologies can be defined.

6B. The quality of service is an important requirement of any network that supports integration of services. What are the parameters that are used in ATM to quantify the services from the perspective of network service provider and network user?

6C. Encode the IP address 240.16.19.28 and Text message : "mtech" in TLV format.

[5+3+2]