Reg. No.									

Manipal Institute of Technology

(A Constituent Institute of Manipal University)

II SEMESTER M. C. A.
END SEMESTER EXAMINATION – MAY/JUNE 2016

SUBJECT: ADVANCED COMPUTER NETWORKS [MCA 4202]

00-00-2016

Time : 3 hours Max. Marks : 50

Instructions to Candidates

1. Answer ANY FIVE FULL questions.
2. Missing data may be suitably assumed.

1A What are the demerits of RARP and BOOTP protocols that gave the way to design of DHCP protocol? State and explain the usage and basic working of DHCP protocol.

1B One of the addresses in a block is 167.199.170.82/27. Find the number of addresses in the network, the first address, and the last address.

1C Explain the role of dual stack and tunneling modes in IPv6.

(5+3+2)

2A Explain the functionality of Data Link and Physical Layers in OSI Model.

2B Compare and Contrast Virtual-Circuit and Datagram Subnets.

2C With a block diagram explain the general header (packet header) format of SCTP header.

(5+3+2)

3A Write about Error Detection and Correction Codes adopted in DLL

3B Mention any three major differences between a router and a repeater or a bridge.

3C Distinguish between Integrated and Differentiated Services in QoS.

(5+3+2)

4A Explain the structure and working principles of a router in a network.

4B An ISP has requested a block of 1000 addresses. The following block is granted.

a. Since 1000 is not a power of 2, 1024 addresses are granted ($1024 = 2^{10}$).

b. The prefix length for the block is calculated as $n = 32 - \log_2 1024 = 22$.

c. The beginning address is chosen as 18.14.12.0 (which is divisible by 1024).

Find the granted block with appropriate mask value. Also find the first and last addresses.

4C Mention the working of Open-loop-Congestion Control in Networks.

(5+3+2)

5A Describe the ARP Packet format with a neat labelled block diagram.

5B Explain any 3 Network Layer Services with a relevant labelled diagram.

5C Explain Static and Dynamic Address Mapping with an example for each.

(5+3+2)

6A Describe Flow Control and Buffering in Transport Protocol.

6B Write about any three required components for IPv4 Routing to happen?

6C Mention any 4 Applications of Wireless Sensor Networks. **(5+3+2)**