Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY, MANIPAL 576104

(Constituent College of Manipal University)

SIXTH SEMESTER B.TECH. (IT) DEGREE END SEMESTER MAKE-UP EXAMINATION, JULY – 2016
SUBJECT: ADVANCED COMPUTER NETWORKS – ICT 304
(REVISED CREDIT SYSTEM)

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

Instructions to candidates

Answer any **FIVE FULL** questions.

Missing data, if any, may be suitably assumed.

1A. With a neat diagram explain the different types of PDUs exchanged between the managed and management station in SNMP.

1B. Discuss the various components of Integrated Services Router Model with an appropriate diagram.

1C. Differentiate between optical gating and wavelength mixing? [5+3+2]

2A. Draw and explain the different types of SONET networks.

2B. Describe the fields of the authentication header protocol of IPSec.

2C. Differentiate the following with respect to ATM networks.

a. SVC and PVC

b. Virtual channels and virtual path [5+3+2]

3A. Design a three stage switch with N=120, 10 crossbars at the first stage and third stage and 4 crossbars at the middle stage. Calculate the total number of cross points supported by this design. Does this system support a non-blocking condition? Justify your answer.

3B. Discuss the second generation hybrid fiber-coaxial cable TV network. Also write the upstream and downstream data transfer technique in it.

3C. Explain two types of name-address-resolution techniques in DNS. [5+3+2]

4A. A certain user enters domain name www.indiana.com in the address bar. The resolver running on this host machine looks for the IP address of this website by sending DNS query message. It fetches the reply as "172.16.19.21" from an authoritative DNS server. Depict the DNS query and response message that is send and received by the client using the format shown in Figure Q.4A.

4B. What is AAL3/4? Explain how AAL3/4 allows multiple users to be multiplexed and interleaved in the ATM virtual connection.

4C. Explain receiver initiated reservation process in RSVP. [5+3+2]

5A. Draw and explain various layers of SS7 protocol stack for signalling.

5B. Show the option negotiation procedure between TELNET client and server. How does it differ from sub-option negotiation?

5C. The BSNL office in Manipal sends data to BSNL office in Mangalore with data rate of 100Mbps. Consider that the backbone network of these offices are connected using step-index fiber with attenuation coefficient of 0.25dB/km. The system uses LASER as the optical source, providing a transmission power of 30dBm, at a wavelength of 0.85μm. If the receiver power is 45mW, calculate the length of the fiber and bandwidth-distance product? [5+3+2]

6A. With a neat diagram explain the following

a. BISDN reference model of ATM network.

b. ATM cell header.

6B. Along with the applications list out various section overhead bytes of SONET frame.

6C. Differentiate between setup time and holding time of a switch. What are the advantages of using buffers in packet switch?

[5+3+2]

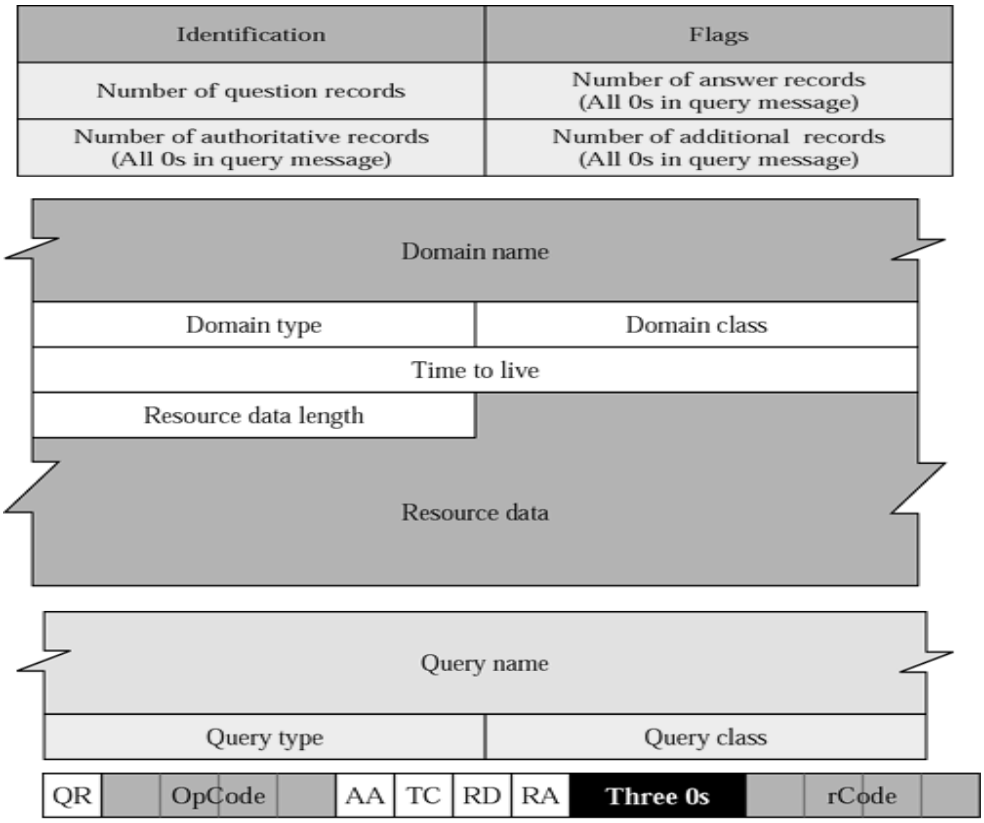

Figure. Q.4A.