MANIPAL INSTITUTE OF TECHNOLOGY, MANIPAL 576104

Reg. No.

(Constituent College of Manipal University)

SIXTH SEMESTER B.TECH. (IT) DEGREE END SEMESTER EXAMINATION MAY - 2016 SUBJECT: ADVANCED COMPUTER NETWORKS - ICT 304 (REVISED CREDIT SYSTEM)

TIME: 3 HOURS	13/05/2016	MAX. MARKS: 50

Instructions to candidates

Answer any **FIVE FULL** questions.

Missing data, if any, may be suitably assumed.

- 1A. Why is DHCP considered as the successor of BOOTP? With suitable diagrams explain the operation of DHCP when the client and server operate in
 - a. Same Network.
 - b. Different Network
- 1B. Mention the advantages of packet switches over circuit switches. Explain with a neat diagram the self-routing procedure for transferring data from input-port to the output-port in a packet switch?
- 1C.A transmitter with a bit rate of 110Mbps can inject a power of 1 Watt into the co-axial cable with a basic error rate of 10⁻¹². If the received power is -105dB and attenuation co-efficient of co-axial cable is 30dB/Km, Calculate the bandwidth distance product and the length of the co-axial cable. [5+3+2]
- 2A. Outline the strategies devised by IETF to aid the transition from IPV4 to IPV6. Also with appropriate diagrams depict the different modes of operations in IPv6 Security.
- 2B. With the help of a neat diagram, explain the uploading and downloading processes in a 56K modem.
- 2C.Calculate the number of cross-points at the middle stage of a modular switch if n=2, k=3 and the total number of cross-points for the entire modular switch is 960. [5+3+2]
- 3A.Explain in detail how AAL-2 supports the service that requires transfer of information at variable data rate. How does this operation differ from that of AAL-1 that support constant data rate?
- 3B. The transmission time of one ATM cell (53 bytes) is 2.854µseconds. If the data is embedded at this rate into user data section of STS-3 frames, how many frames will carry stuffed bytes in H3.
- 3C.Differentiate the following in context with DNS?
 - a. FODN and PODN
 - b. Resolver and Registrar
- 4A. How is synchronization achieved in SONET devices if incoming data rate is faster than outgoing data rate? Explain how, a higher data rate signal is generated from lower data rate signals in SONET.
- 4B. Describe in brief the control characters used in TELNET to control an application program running on remote server.
- 4C. What is LSR? Highlight how LSR separates control and forwarding components in a node with a neat diagram. [5+3+2]
- 5A. Elaborate with a neat diagram the working of Wavelength Division Multiplexing. List out the advantages of WDM.
- 5B. Show the lexicographic ordering in which MIB Objects are accessed by the manager for the Figure 1 given below.



[5+3+2]



Figure Q.5B

5C. Enumerate the various features of RSVP.

[5+3+2]

- 6A. State and explain any four Switch performance measures. Calculate the number of configurations and number of cross points for a
 - a. 4x4 point-to-point Switch
 - b. 3x3 multi-point Switch
 - c. 4x4 cross-bar Switch
- 6B. Discuss the various QoS parameters specified by the source during connection setup phase in the ATM Networks.
- 6C. Illustrate the last mile problem observed in old circuit switched networks. Specify how this issue can be resolved. [5+3+2]