

C2-R4: ADVANCED COMPUTER NETWORKS

NOTE:

1. Answer question 1 and any FOUR from questions 2 to 7.
2. Parts of the same question should be answered together and in the same sequence.

Time: 3 Hours

Total Marks: 100

1.
 - a) Explain how Slotted ALOHA is better than Pure ALOHA in detail.
 - b) Explain 3-way handshaking for connection establishment in TCP.
 - c) Write a short note on multicast backbone (MBONE).
 - d) Describe leaky bucket algorithm in detail. List down the disadvantage of leaky bucket algorithm.
 - e) Explain the concept of tunneling by taking a suitable example.
 - f) List down and explain the features of IPv6 in brief.
 - g) Draw and explain the field of UDP header.

(7x4)
2.
 - a) Explain First Come First Server (FCFS) splitting algorithm in detail.
 - b) Remote Procedure Call (RPC) is an inter-process communication which allows a computer program to call a subroutine which executes in other address space. List down and explain basic RPC operation in detail.

(10+8)
3.
 - a) Explain Real Time Transport Control Protocol using an example.
 - b) Explain Jacobson's TCP congestion control algorithm and its performance in detail.

(9+9)
4.
 - a) Discuss MPLS (Multiprotocol Label Switching) packet forwarding technique in detail.
 - b) Explain Link State Multicast and Distance Vector Multicast in detail.

(9+9)
5.
 - a) What are the limitation of IPv4 addressing scheme? Discuss Classless Addressing Scheme in detail.
 - b) Explain Voice over Internet Protocol (VoIP) in detail.
 - c) Explain various multiplexing technique with its advantages and disadvantages.

(6+6+6)
6.
 - a) Explain various types of ATM Adaption Layer (AAL) in detail.
 - b) Explain Internet Protocol Security (IPSec) in detail.
 - c) An ATM cell header can be one of two formats: UNI or the NNI. The UNI header is used for communication between ATM endpoints and ATM switches in private ATM networks. The NNI header is used for communication between ATM switches. Write and explain fields of UNI and NNI frame format.

(5+6+7)
7.
 - a) Explain all four variants of Protocol Independent Multicast (PIM) in detail.
 - b) Draw the TCP header and explain its field in brief. What is the maximum size of TCP header? Differentiate TCP and UDP.

(9+9)