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) What are the characteristics of ATM?
b) What are the two most basic forms of multiplexing? Briefly explain.
c) Briefly explain the effect of congestion?
d) What are the pros and cons of Multicast Backbone (MBONE)?
e) Briefly explain and differentiate slotted ALOHA and pure ALOHA.
f) Why TCP/IP and UDP/IP is not suitable for real time streaming of audio and video?
g) What do you understand by Service Overlay Network? Briefly explain by stating one example.

(7x4)

2.
a) Explain the responsibility of network layer and IP packet format. Also explain each field of IP packet format in detail.
b) IPv6 (Internet Protocol version 6) is the latest revision of the Internet Protocol (IP). Write down the features of IPv6.

(12+6)

3.
a) What is the significance of Jackson's theorem for network of queues? Explain the theorem in detail.
b) ATM is a connection-oriented, unreliable (does not acknowledge the receipt of cells sent), virtual circuit packet switching technology. What are the responsibilities of virtual circuits in ATM network?

(10+8)

4.
a) What is Real time Streaming Protocol (RTSP) and explain how it is being used for Audio and Video streaming?
b) What are the implications of Burke's Theorem? Explain in brief.
c) Discuss sub netting and super netting. How do the subnet and supernet mask differ from a default mask in classful addressing?

(6+6+6)

5.
a) 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.
b) State the steady-state parameters of M/G/1 queue. Explain M/G/1 queue with example.

(8+10)

6.
a) What is Resource Reservation Protocol (RSVP) and explain with respect to Quality of Service (QoS).
b) TCP is connection oriented protocol which establishes connection before data transmission. Explain steps of TCP three way handshakes.

(9+9)

7.
a) What is Link State Multicast and Reverse Path multicast? Explain.
b) What are the basic features of MPLS? Explain its benefits also.

(9+9)