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 Asynchronous time-division multiplexing with an example.
b)   Draw and explain UNI (User-Network Interface) cell format of ATM.
c)   What is TCP window shaping? Explain with respect to network congestion avoidance.
d)   What is tunneling? Explain in brief with an example.
e)   Write advantages and disadvantages of MPLS implementation at layer 2 and layer 3 VPN.
f)   What is Multicast backbone (MBONE)? Write and explain various characteristics of it.
g)   Explain in brief on Voice over IP.

(7x4)

2.
a)   Write First Come First Serve (FCFS) Splitting Algorithm and explain with an example.
b)   What is Carrier Sense Multiple Access (CSMA)? Explain various protocols of it.

(9+9)

3.
a)   Write and explain various ARM Adaptation Layer Protocols. Write various services of it.
b)   Write a Virtual scheduling algorithm in ATM networks and explain with an example.

(9+9)

4.
a)   Draw IPv6 packet header and explain each component of it. Compare IPv6 and IPv4 with various critical features.
b)   What is Resource reservation protocol (RSVP) and explain w.r.t. Quality of Service.

(9+9)

5.
a)   What is Transmission Control Protocol? Write and explain various functions of it. What are the vulnerabilities of TCP and explain how TCP may be attacked due to its vulnerability.
b)   Compare TCP and UDP with various critical features.

(9+9)

6.
a)   What is Real-Time Streaming Protocol (RTSP) and explain how it is being used for Audio and Video streaming. Write various functions of it.
b)   What is Real-Time Transport Control Protocol and explain with an example.

(9+9)

7.   Explain in brief:
a)   Gigabit Ethernet and its application
b)   Internet Protocol Security (IPSec)
c)   M/G/1 Queues

(6+6+6)