

## 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) Differentiate between non persistent and persistent CSMA.
- b) Why efficiency of slotted ALOHA is more than ALOHA?
- c) Discuss the frame of Point to Point Protocol that works on Data Link Layer.
- d) What properties do the WDMA and GSM channel access protocols have in common?
- e) How does the Reverse Address Resolution Protocol (RARP) work?
- f) How congestion control in virtual circuits subnets is performed?
- g) Define constant bit rate, real time variable bit rate, non real time variable bit rate, available bit rate.

(7x4)

2.

- a) What is the effect of RTT variance on TCP performance? Explain Jacobson's Algorithm in this context.
- b) Differentiate between distance vector routing and link state routing. Explain the functioning of link state routing?

(9+9)

3.

- a) The byte counting variant of leaky bucket algorithm is used in particular system. The rule that one 1024 byte packet, or two 512 byte packets, etc. may be sent on each link. There is a serious restriction on this system. Please mention this.
- b) Make the diagram of main IPv6 header and explain its various fields.
- c) Why the Gateway is maintained in computer networks? Explain the working of Interior Gateway Routing Protocol.

(6+6+6)

4.

- a) Briefly explain Weighted Fair Queuing (WFQ) Algorithm and compare it with FIFO.
- b) What are the features of MPLS? Show and discuss MPLS packet forwarding.

(9+9)

5.

- a) Differentiate between circuit switching, packet switching and message switching.
- b) What are the different functions performed by Data Link Layer? Explain the functioning of repeater, hubs, bridges, switches and gateways.

(6+12)

**6.**

- a) A TCP machine is sending full windows of 65,535 bytes over a 1 Gbps channel that has a 10ms one way delay. What is the maximum throughput available? What is the line efficiency?
- b) What is the bandwidth delay product for a 50 Mbps channel on a geostationary satellite if the packets are all 1500 bytes (including overhead) how big should the window be in packets.

**(9+9)**

**7.**

- a) Explain the process of client side dynamic web page generation.
- b) Explain the functioning of wireless application protocol.

**(9+9)**