

JK Lakshmipat University Jaipur
INSTITUTE OF ENGINEERING AND TECHNOLOGY

End Term Examination, December 2025
BCA, Semester V, 2025-26

Roll No.....

CS1124: Computer Networks and Network Administration

Time: 2 hours

Max. Marks: 30

Instructions to students:

1. Do not write anything other than your roll number on question paper.
 2. Mention all the assumptions for your answers clearly.
 3. Scientific calculator is allowed.
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1. A browser requests the webpage www.google.co.in, which contains 10 embedded objects (images/scripts). How many client port numbers are used during the retrieval of the complete webpage?

2(CO 3)

2. Suppose a TCP connection is transferring a 150-byte file. The initial sequence number (ISN) is 100. The data is sent in two segments: the first segment carries 75 bytes. What is the starting sequence number of the second segment?

2(CO 2)

3. A TCP connection is transferring 6000 bytes of data. The first byte has sequence number 10010. The data is sent in 5 segments: the first four segments carry 1000 bytes each, and the last segment carries 2000 bytes. What is the sequence number of the last byte sent?

4(CO 3,4)

4. A router with an MTU of 500 bytes receives an IP datagram of size 3000 bytes. The IP header is 15 bytes long. What will be the sizes (data + header), fragment offsets, and MF (More Fragments) flags of the IP fragments generated by the router?

4(CO 4,5)

5. A transport-layer datagram of size 4000 bytes arrives at the network layer. It must be forwarded through a link whose MTU is 800 bytes. The IP header size is 20 bytes. How many fragments are generated, and what is the data size of the last fragment?

6(CO 6)

6. Suppose a router receives an IP packet containing 600 data bytes and has to forward the packet to a network with maximum transmission unit of 200 bytes. Assume that IP header is 20 bytes long. What are fragment offset values for divided packets?

6(CO 2,6)

7. Consider an instance of TCP's Additive Increase Multiplicative Decrease (AIMD) algorithm where the window size at the start of slow start phase is 1 MSS and the threshold at the start is 16 MSS. Assume TCP use over a lossy link i.e., timeout occur after transmission of 7th packet. What is the congestion window size at the end of 14 RTT (in MSS)?

6(CO 6)

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