

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATIONS- 2026

B.Tech-VI Semester (CSE/IT)

COURSE CODE (CREDITS): 18B11CI611(3)

MAX MARKS: 35

COURSE NAME: Computer Networks

COURSE INSTRUCTOR: HRI/NTS/GVN/SRJ

MAX. TIME: 2 Hours

Note: (a) All questions are compulsory.

(b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

(c) Use of calculator is not allowed

Q.No	Question	CO	Marks
Q1	A). For each of the following four networks, discuss the consequences if a connection fails. a. Five devices arranged in a mesh topology b. Five devices arranged in a star topology (not counting the hub) c. Five devices arranged in a bus topology d. Five devices arranged in a ring topology B). In an internet, we change the LAN technology to a new one. Which layers in the TCP/IP protocol suite need to be changed?	CO1	[4+1]
Q2	A. Draw the message header of IPv6 giving brief of the fields in it. B. Explain the steps for autoconfiguration by host in IPv6.	CO3	[2+2]
Q3	A). Describe the difference between the connection-oriented and connection-less service at the network layer and transport layer. B). Imagine a TCP connection is transferring a file of 6000 bytes. The first byte is numbered 10010. What are the sequence numbers for each segment if data are sent in five segments with the first four segments carrying 1000 bytes and the last segment carrying 2000 bytes?	CO4	[2+3]
Q4	Assume we need to design a Selective-Repeat sliding-window protocol for a network in which the bandwidth is 1 Gbps and the average distance between the sender and receiver is 5,000 km. Assume the average packet size is 50,000 bits and the propagation speed in the media is 2×10^8 m. Find the maximum size of the send and receive windows, the number of bits in the sequence number field (m), and an appropriate time-out value for the timer.	CO4	[3]
Q5	A). Describe the formula for computing the size of receive window (rwnd) in a TCP communication. B). The following is part of a TCP header dump (contents) in	CO4	[1+4]

	hexadecimal format. E293 0017 00000001 00000000 5002 07FF... a. What is the source port number? b. What is the sequence number? c. What is the type of the segment? d. What is the window size?		
Q6	Describe the policies used by the TCP to handle congestion in the network.	CO4	[3]
Q7	Draw HTTP request and response message formats. Briefly describe various fields present there.	CO5	[5]
Q8	Describe the process of remote logging using TELNET with a neat and clean diagram.	CO5	[5]