JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATION- 2025

B.Tech-VI Semester (CSE/IT/ECE/CE/BT/BI)

COURSE CODE (CREDITS): 18B11CI611 (3)

MAX. MARKS: 35

COURSE NAME: Computer Networks

COURSE INSTRUCTORS: Dr. Hari Singh/ Dr. Nancy/ Dr. R. Kanji/ Dr. Kuntal/Dr. P. Modi

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

JUIT TEST-3 EXAMINATION- May-2025

Q.No	Question	CO	Marks
Q1	Describe the jobs and responsibilities of Network Layer in the TCP/IP Model.	CO1	3
Q2	A. 200.107.16.17/18 addresses belongs to a block. Find the first and the last usable address in each block. B. Describe Error Reporting messages in ICMP. C. A packet has arrived in which the offset value is 100, the value of HLEN is 5, and the value of the total length field is 100. What are the numbers of the first byte and the last byte?	CO4	2+3+2=7
Q3	Consider a network with 5 routers: A, B, C, D, and E. The current router is C, and the measured delays (direct link costs) from C to its neighbors are: • C to A: 2 • C to B: 5 • C to D: 1 • (No direct link to E) Routers A, B, and D send the following distance vectors to C: Destination / A's vector / B's vector / D's vector A / 0 / 3 / 2 B / 3 / 0 / 4 C / 2 / 5 / 1 D / 4 / 2 / 0 E / 7 / 6 / 3 Using Distance Vector Routing, compute C's new routing table. List for each destination, best next hop (outgoing line) and total expected delay.	CO4	3

Q4	A. Compare IPV4 and IPV6 header in terms of the following fields: (a) Header Length (b) Flow label B. When tunneling strategy is used for IPv4 – Ipv6 transition?	CO4	2+2=4
Q5	A. In a TCP connection, assume that maximum segment size (MSS) is 1000 bytes. The client process has 5400 bytes to send to the server process, which has no bytes to respond (unidirectional communication). The TCP server generates ACKs according to the rules we discussed in the text. Show the time line for the transactions during the slow start phase, indicating the value of cwnd at the beginning, at the end, and after each change. Assume that each segment header is only 20 bytes. B. A sender sends a series of packets to the same destination using 5-bit sequence numbers. If the sequence numbers start with 0, what is the sequence number of the 100th packet?	CO5	3+2=5
Q6	Draw TCP Header and explain the meaning of all the fields in detail.	CO5	5
Q7	A. Describe the role of cookies in electronic store (e-commerce). B. Describe the features of IMAP4 over the POP3 protocol.	CO6	2+2=4
Q8	Describe Mobile IP Protocol. Explain the process when a correspondent node wants to communicate with a mobile node that has moved to a foreign network. Support your answer with figures.	CO7	4

JUIT TEST-3 EXAMINATION- May-2025