JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATION- 2024

M.Tech-I Semester (CSE/IT/ECE/CE/BT/BI)

COURSE CODE (CREDITS): 10M11CI112 MAX. MARKS: 25

COURSE NAME: Advanced Computer Networks

COURSE INSTRUCTORS: Dr. Ramesh Narwal MAX. TIME: 1 Hour 30 Minutes

Note: *(a) All questions are compulsory.*

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

Q.No	Question	CO	Marks
Q1	Describe the working of inter-domain routing protocols like BGP and their real-life implementation in ensuring global internet connectivity across different ISPs.		5
Q2	Discuss different approaches to network congestion control algorithms and how they prevent internet slowdowns during peak hours (e.g., during online gaming or video streaming).		5
Q3	Explain the role of IPv6 in modern internet infrastructure, particularly in handling the growth of IoT devices like smart homes, connected cars, and wearable technologies.		5
Q4	Analyze the key features of the IoT-RPL routing protocol for Low Power and Lossy Networks (LLNs) and its use in real-world smart agriculture, where low-power devices communicate over large distances.		5
Q5	a) A sender wants to transmit the binary message 1101011011 using a generator polynomial 1011 for error detection through Cyclic Redundancy Check (CRC). i)Calculate the CRC code that will be appended to the message before transmission. ii) Show the step-by-step division process. b) Consider the following four 8-bit data segments that need to be sent:10011001, 11001001, 10111010, 11110000 i) Calculate the checksum that would be appended to the message to ensure integrity at the receiver. ii)If the received message is 10011001 11001001 10111010 11110000 00100101, verify if the received data is error-free by calculating the checksum of the received message.		5(2.5+ 2.5)