Subject Code: EC-419   **Subject Name:** Computer Communication Network

(Branch: EC)

Maximum marks: 60 (Full marks 50)   **Time:** 3hours

This question paper contains one page.

Instructions:
1. Answer as many questions you can. Marks secured above 50 will be rounded up to 50
2. Due credit will be awarded for neatness in drawing and labeling diagrams.

Q. No.	Question Descriptions	Marks
1	Write short notes on HUB, Bridge, Router, Repeater, Switch and NIC by mentioning their layering structure.	6
2	A generator function $G(X)$ is given as $x^3 + x^2 + 1$ and message signal represented as $M(X) = x^9 + x^8 + x^6 + x^4 + x^3 + x + 1$ A. Derive the devisor from $G(X)$ B. What is the use of checksum (CRC)? Calculate it for the above signal. C. Find out the transmitted signal? D. Check the validity of the data.	1+5+2+2
3	Suppose channel 1 has vector code (1, -1) with data (1, 0, 1, 1) and channel 2 has vector code (1, 1) with data (0, 0, 1, 1) Assume both channels transmit simultaneously. Calculate the following for each channel A. Transmitted signal B. Row signal C. Decoded/data signal	2 +2+2
4	Rewrite the following hexadecimal IP addresses in dotted decimal notation. Identify the address class, host id and net id (in hex 8-bit groups) in each case. A. C0290614 B. C2124679	3+3
5	Draw an internetworking connection with the following specification. Show all the hosts, their addresses and connections. The address selection is up to you. A. One token ring network with four hosts (class A) B. One Ethernet with four hosts (class C) C. The Token ring connected to the Ethernet by a gateway	2+2+2
5	Describe the IP algorithm used to forward datagram.	3
6	Describe the protocol which provides ports used to distinguish among multiple programs executing on a single machine, completely.	3
7	How a UDP datagram encapsulate in an IP datagram for transmission across an internet and also describe the conceptual layering of UDP.	3
8	Describe the format of a TCP segment. Explain it completely.	4
9	Explain the Client-Server model	3
10	Write the Client-Server program using TCP socket connection in C in which Client requests the server to return the sum of two integers entered as input.	10

All the Best!