Name:.....
Roll No:.....

MAR ATHANASIUS COLLEGE OF ENGINEERING
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(Govt. Aided Autonomous Institution)
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

B. TECH SECOND SERIES EXAMINATION OCTOBER 2026
(S7 ECE A &B) ECT423 COMPUTER NETWORKS

Max. Marks: 40 Duration: 1.5 Hours

PART A

Answer all questions. Each question carries 3 marks.

1. A laptop connects to a new office LAN and within seconds is assigned an IP address, subnet mask, and DNS server address, without any manual configuration. Name the protocol responsible for this, and briefly explain the messages exchanged. (CO3)

2. An organization is allotted the address block 192.168.20.0/27. Determine (i) the number of usable host addresses and (ii) the broadcast address and the (iii) class of this block. (CO3)

3. A sender transmits the data bits 1101011011 using single-bit even parity. Determine the parity bit appended by the sender and explain one type of error that this scheme fails to detect. (CO4)

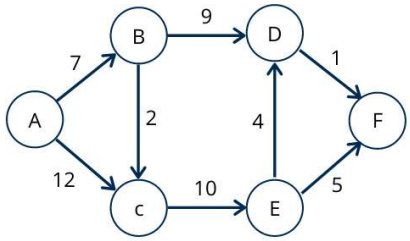
4. Give the details of different CSMA strategies. (CO4)

PART B

Answer all questions. Each question carries 14 marks.

5. a. An organization is granted the address block 14.24.74.0/24. It needs to create 4 subnets to accommodate departments requiring 100, 50, 25 and 10 hosts respectively. Using Variable Length Subnet Masking, determine a suitable subnet mask, the network address, and the usable host range for each subnet. Show how it can be assigned. (CO3)

   b. Compute the shortest path for the following graph using Dijkstra algorithm. (CO3)



P.T.O

6. a. Explain how random-access protocols govern the sharing of medium. (CO4)

b. Describe how the WLAN operates using an appropriate network architecture. (CO4)