National University of Computer and Emerging Sciences, Lahore Campus

	Course Name:	Computer Networks	Course Code:	CS 3001
	Program:	BS (Software Engineering)	Semester:	Spring 2024
	Duration:	15 minutes	Total Marks:	15
	Paper Date:	02-May-2024	Section	BSE-6A
	Exam Type:	Quiz 6 - Chapter 6	Page(s):	3

Student Name **Roll No.** **Section:**

Q1. Encircle the correct option: **[5 marks] [CLO 3]**

1. In a switch table, what information does the MAC address table store?
   a) IP addresses of connected devices
   b) Port and corresponding MAC addresses
   c) Domain Name System (DNS) entries
   d) Switch configuration settings

2. CRC is used for:
   a) Error detection
   b) Error correction
   c) error detection and correction
   d) none

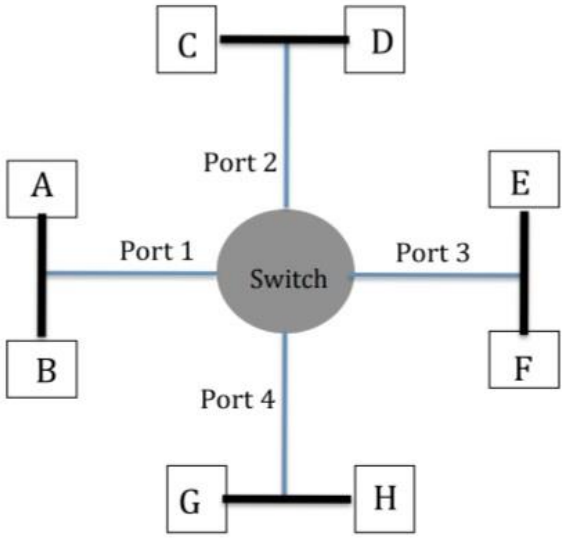
3. In ALOHA, what happens if a collision occurs?
   a) The data is retransmitted after a random time
   b) The data is discarded
   c) The sender waits for an acknowledgment
   d) The sender reduces the transmission rate

True/False:

i. Pure (Un-slotted) Aloha is highly centralized. [T / F]
ii. In networks using CSMA/CD, there is a chance of collision [T / F]

Question 2

Consider the following set of **four Ethernet segments** connected by a central switch (not a hub). Each Ethernet segment has **two hosts** on it. Assume at the beginning that the switch has no state about where each of the hosts reside, and will use **self-learning** to build its **routing table** during the sequence of transmissions listed below. For each step in this sequence of transmissions, list which **port(s)** the Ethernet frame is forwarded to by the switch **[1*4 = 4 Marks] [CLO 3]**



i. A sends to E: _____

ii. A sends to B: _____

iii. G sends to E: _____

iv. E sends to A: _____

Question 3

Consider the network topology shown in Figure 2 comprising routers, switches, and hosts. The IP addresses and MAC addresses assigned to various interfaces are shown in the figure. The routing and ARP table entries are also shown for selected routers and hosts. The figure shows five timestamps in the journey of an IP packet from **source host 192.168.1.2 to destination host 192.168.2.2.** **[3*2=6 Marks] [CLO 3]**

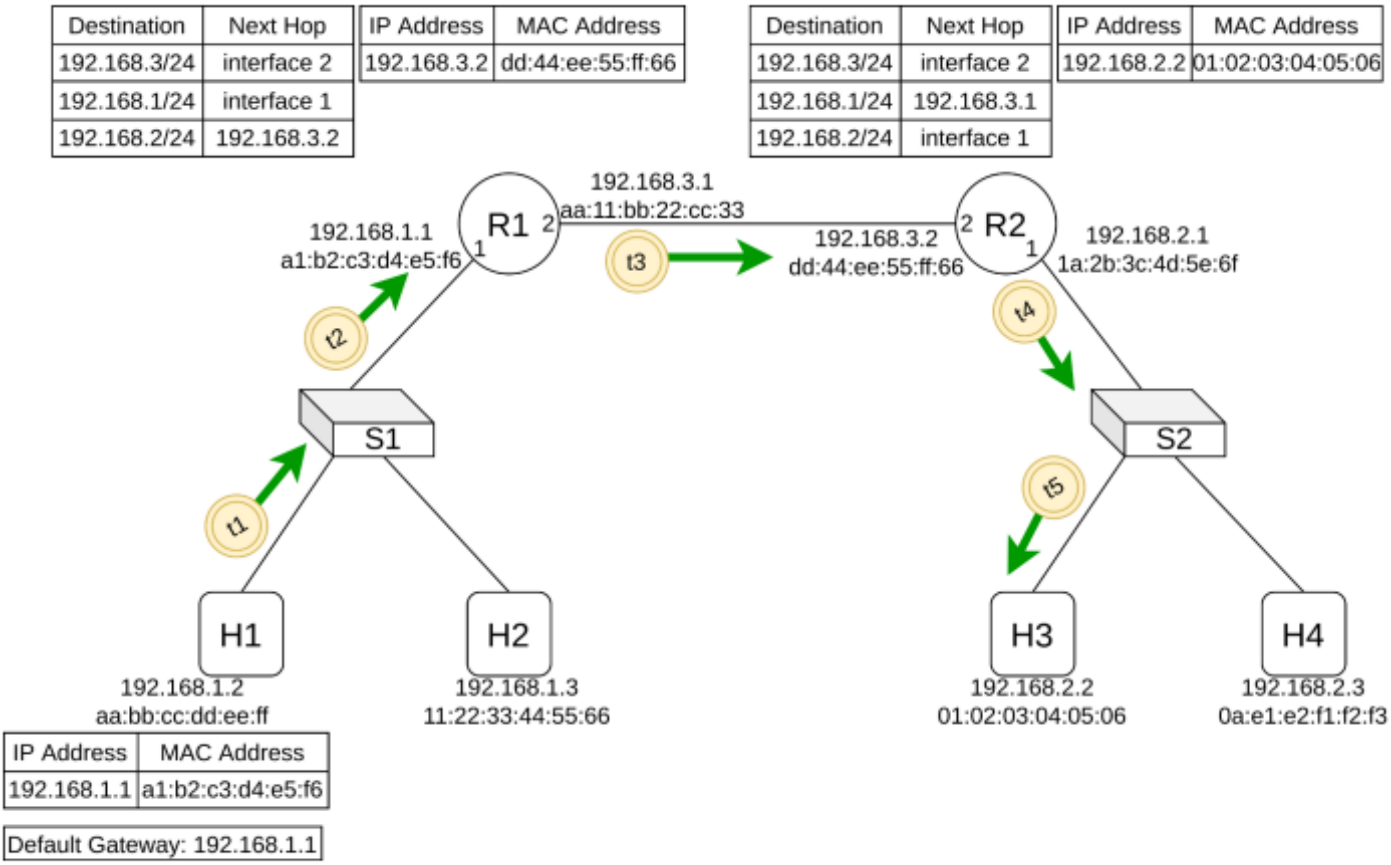


Figure 2: Sample Network Topology

Mention the following header fields for the above IP packet at timestamps **t1 to t3.**

Timestamp	Ethernet Source	Ethernet Destination	IP Source	IP Destination
t1				
t2				
t3				