National University of Computer and Emerging Sciences, Lahore Campus

	Course Name:	Computer Networks	Course Code:	CS 3001
	Program:	BS (Computer Science)	Semester:	Spring 2024
	Duration:	15 minutes	Total Marks:	15
	Paper Date:	2-Apr-2024	Section	6A
	Exam Type:	Quiz 4 - Chapter 4	Page(s):	2

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

Q1. <u>Encircle the correct option:</u> **[5 marks] [CLO 1]**

1. An IP packet has arrived with the first 8 bits as 0100 0110. Which of the following is correct?
   a) IPv4, Header Length: 24 bytes
   b) IPv4, Header Length: 32 bytes
   c) IPv6, Header Length: 24 bytes
   d) IPv6, Header Length: 32 bytes

2. In Classless Inter-Domain Routing (CIDR), the network ID in an IPv4 address is:
   a) always 8 bits long
   b) always 16 bits long
   c) always 24 bits long
   d) none of the above

3. Which IP address(es) should never be assignable to hosts?
   a) Network IP address
   b) Broadcast address on the network
   c) Both a and b
   d) none of above

True/False:

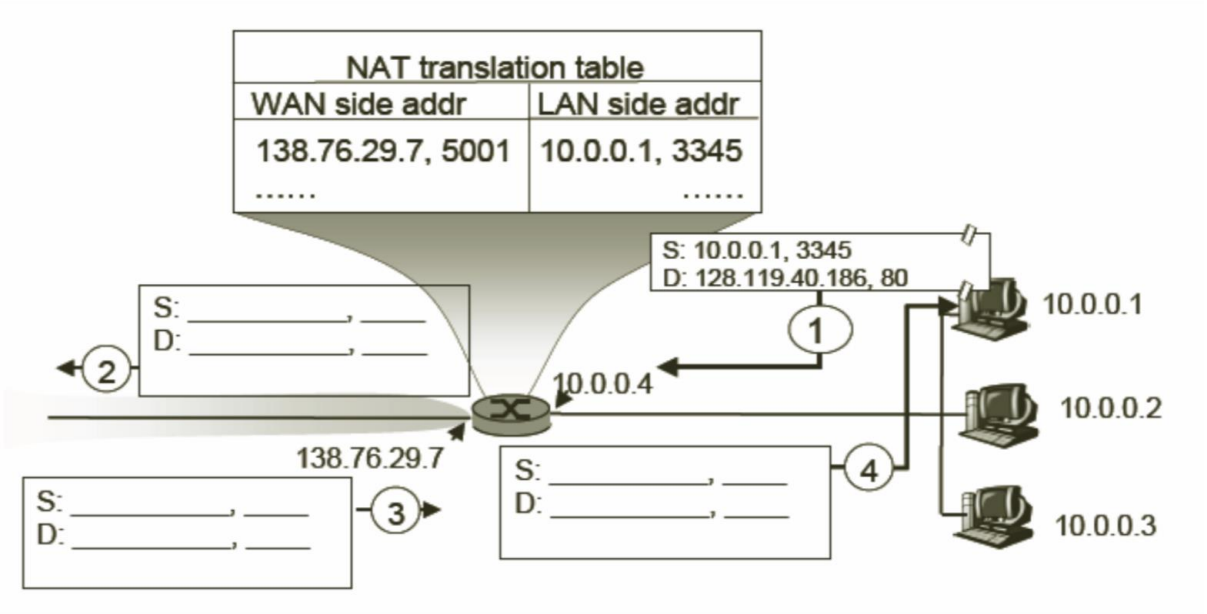
a. A DHCP client that has been assigned an address for a period can release the address before the expiration time. [T / F]
b. VLSM is possible with both Classful and Classless IPv4 addressing schemes. [T / F]

Question 2: **[Marks 10] [CLO 1]**

a) The diagram below shows a packet traveling through a NAT router. Packet 1 is sent from the internal host (S) to the NAT router, packet 2 is sent from the NAT router to the external web server (D), packet 3 is received from the web server by the NAT router, and packet 4 is sent by the NAT router to the original host.

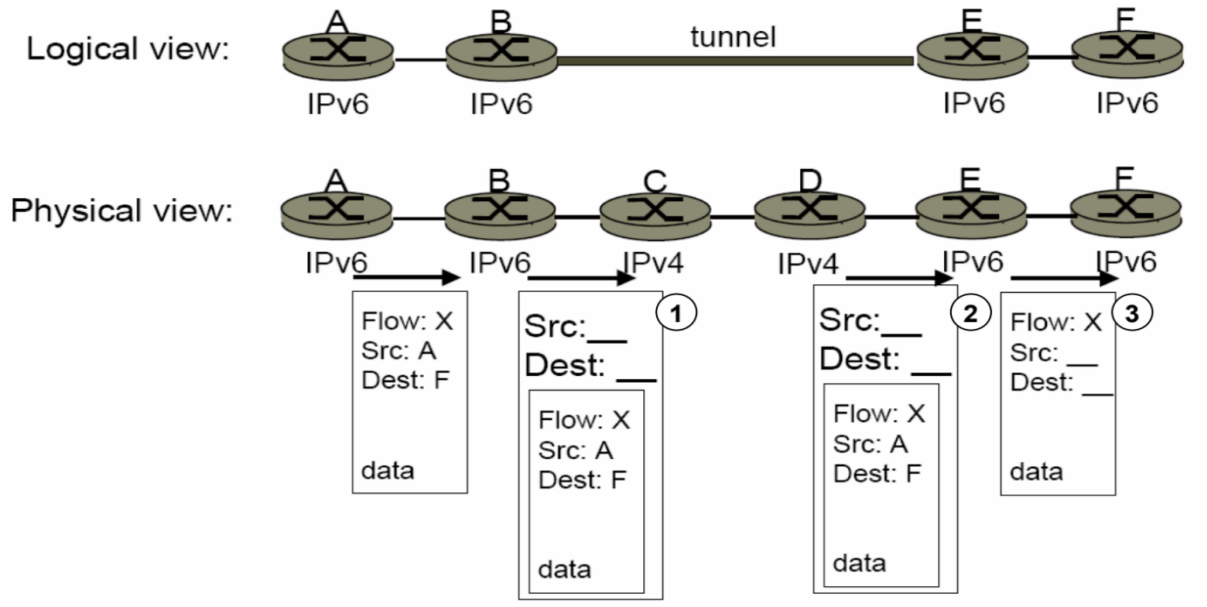
Fill in the missing source and destination IP addresses and port numbers in packets 2-4.

[6 Marks]



b) The diagram below shows an IPv6 packet tunneled over IPv4 across routers with IP addresses A, B, C, D, E & F. Fill in the missing source and destination addresses at places/packets marked 1, 2, and 3.

[3 Marks]



c) Name two modifications of IPv6, from the IPv4, that allow a router to process a packet quicker.

[1 Mark]