

8. Question In ARP, The response packet (ARP reply) is _____

- a. Unicast
- b. Broadcast
- c. Multicast
- d. None of the above

9. _____ requires one primary station and one or more secondary stations.

- a. Token ring
- b. Reservation
- c. Polling
- d. CSMA

10. The Ethernet address is a _____ bits, normally written in hexadecimal notation, with a colon between the bytes.

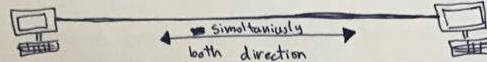
- a. 30
- b. 48
- c. 42
- d. None of the above

[10 Marks]

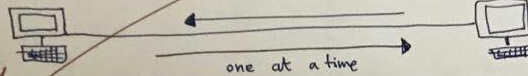


d) What is the difference between Full-duplex, Half-duplex and Simplex operation?

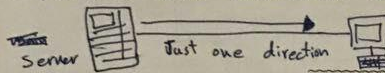
Full-duplex means bidirectional communication in both directions at the same time simultaneously



Half-duplex means bidirectional communication in both direction one at a time not in the same time



Simplex mode mean communication only in one direction. one device will only send and the other will only receive [4 Marks]



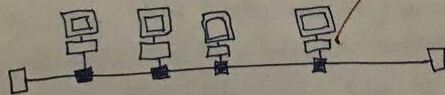
e) What is the difference between a point to point link and a broadcast link?

point to point link mean that the medium is dedecated just for two devices.



for example mesh, tapology

broadcast or multipoint link the medum is shared between several devices like Bus topology



[4 Marks]



Q1) Choose ONE correct answer from each of the following MCQs.

1. Four devices can share a link in _____ connection.
a. Point - point
b. Fully- connected ✓
c. Half-duplex
d. None of the choices *multi point*
2. There are/is _____ link(s) in a fully-connected mesh topology has seven computers.
a. 1
b. 21 ✓
c. 42
d. None of the choices
3. How long is an IPv6 address?
a. 32 bits
b. 128 bytes
c. 64 bits
d. 128 bits ✓
4. The number of periods in one second is called _____.
a. amplitude
b. Periodic
c. Frequency ✓
d. Non-periodic
5. A loss of energy in a signal is defined as
a. Attenuation ✓
b. Distortion
c. Decibel
d. Noise
6. Twisting in a twisted-pair help reduce the _____.
a. Length
b. Cost
c. Noise ✓
d. None of the above
7. FF:FF:FF:FF:FF:FF is a _____ link-layer addresses
a. Multicast
b. Broadcast ✓
c. Unicast
d. None of the above

10/10

The second is unicast because the second digit is even in binary notation
the third is unicast because the second digit is even in binary notation
the fourth is multicast because the second digit is odd in binary [4 Marks]

c) How would you differentiate between a MAC address and a Hardware address? What is the length of a MAC address in Bits?

MAC address and Hardware address are the same thing they are both represent the link address or physical address. Unless you mean IP address by Hardware or protocol address. if that's the case then MAC address change from node to node in the network for example change in the router. but the IP address does not change. [4 Marks]

MAC address from data-link layer

IP address from network layer

the length of MAC address in Bits is 48 bits or (6 bytes)

4/4

6- Which of the following is the proper way to dynamically access the background color?

- a) document.body.style.BackgroundColor
- b) document.body.attributes.BackgroundColor
- c) document.body.style.backgroundColor
- d) document.body.style.background-color

Question 2:

(6 Marks)

For each of the following statements, answer with True or False.

Type only True or False *not T or F*

1.	JavaScript code did not need to be compiled.	T
2	In JavaScript, type of a variable is dynamic which depends on the type of data it contains.	T
3	Text put between the <head></head> tags appears in the browser's title bar (i.e., the dark bar at the top of the browser window)	F
4	A cache is a local copy of information obtained from some other source.	T
5	In CSS, colors can be specified either by writing color names or their RGB values	T
6	The method (clearInterval) is a method of windows object that stops repetitive calls	T
		T

hexadecimal notation. The transmission is left to right, byte by byte. This means that the least significant bit is sent first and the most significant bit is sent last. This means that the bit that defines an address as unicast or multicast arrives first at the receiver. This helps the receiver to immediately know if the packet is unicast or multicast.

Example 13.1

Show how the address 47:20:1B:2E:08:EE is sent out online.

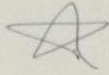
Solution

The address is sent left to right, byte by byte; for each byte, it is sent right to left, bit by bit, as shown below:

Hexadecimal	47	20	1B	2E	08	EE
Binary	01000111	00100000	00011011	00101110	00001000	11101110
Transmitted	11100010	00000100	11011000	01110100	00010000	01110111

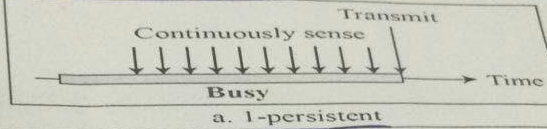
Binary ← الـ 1111

For CSMA is the propagation time T_p . This is the time propagate from one end of the medium to the other.

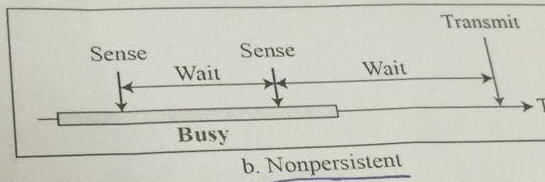


of three persistence methods
do if the channel is busy/idle?

line idle,
ately

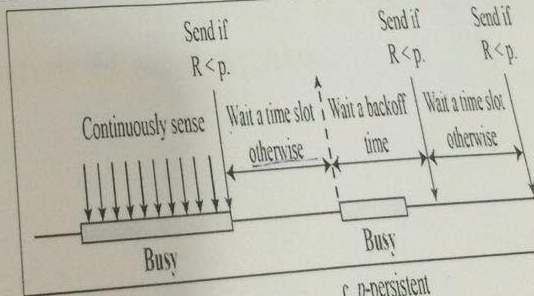


to send
is idle, it
line is not
count of
line again.



ce of Collision

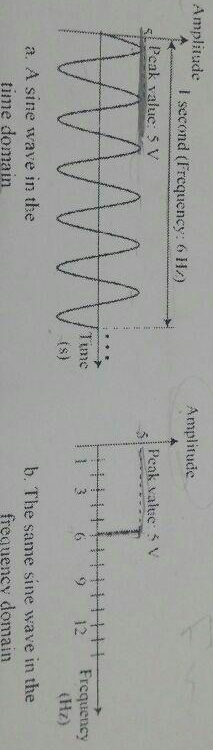
line idle it
the next
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s as though
nd uses the



ce of Collision and improve

Sine wave amplitude vs frequency - Time

Figure 3.8: The time-domain and frequency-domain plots of a sine wave

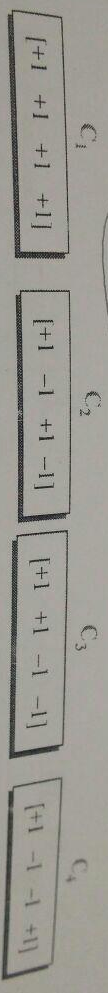


- It is obvious that the frequency domain is easy to plot and conveys the information that one can find in a time domain plot.
- The advantage of the frequency domain is that we can immediately see the values of the frequency and peak amplitude.
- A complete sine wave is represented by one spike. The position of the spike shows the frequency; its height shows the peak amplitude.

Let us see how the above four stations can send data using the same common channel, as shown in Figure 12.23.

12.45

Figure 12.24: Chip sequences



Chips
DMA is based on coding theory. Each station is assigned a code, which is a sequence of numbers called **chips**, as shown in Figure 12.24. The codes are for the previous example. We refer to these chips, they are called **orthogonal sequences** and have the following properties:

Each sequence is made of N elements, where N is the number of stations.
multiplication of a sequence by a scalar.

$$2 * [+1 \ +1 \ -1 \ -1] = [+2 \ +2 \ -2 \ -2]$$

number of elements in each sequence

Q4) Answer the following questions briefly.

20/20

a) Calculate the number of bits per level if a digital signal has 16 levels.

$$\begin{aligned} &= \log_2 16 \\ &= 4 \text{ bits} \end{aligned}$$

[4 Marks]

b) Find out the types of following destination address also give reason for your answer Why?

- I. B3:34:45:11:92:F1
- II. 2C:34:45:11:92:F1
- III. A8:34:45:11:92:F1
- IV. 9D:00:87:90:FF:FF

$$\frac{4}{4}$$

I → is a multicast because the 2nd number from the left is odd

II → is a unicast because the last number as binary is 0 → even

III → is a unicast because the 2nd number from the left is odd

IV → is a multicast because the last number as binary is 1 → odd

[4 Marks]

c) How would you differentiate between a MAC address and a Hardware address? What is the length of a MAC address in Bits?

$$\frac{4}{4}$$

It is a unique address and physical address.

The length of the MAC address is 48 bits

[4 Marks]