

combinational circuits

shows required input combination for a given change of state.



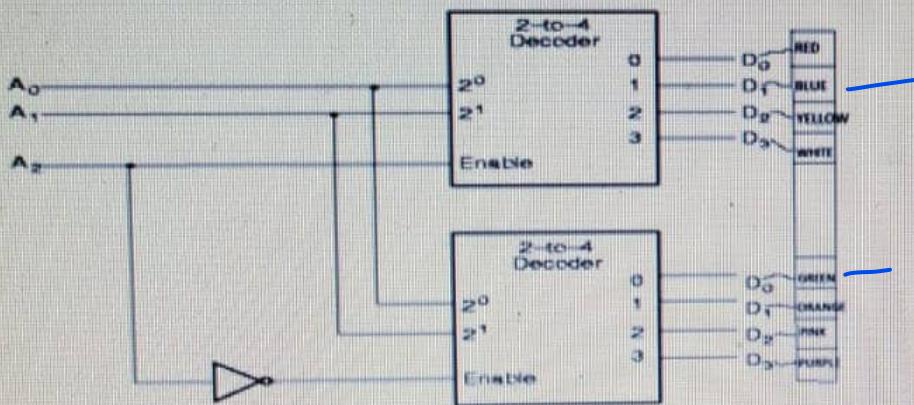
1 st usable IP address

Answer:

NAND or NOR

is comprised with a combinational circuit and memory elements.

Following is the block diagram of a Combinational circuit which is made up of two 2-4 Decoders.  
 Assume that each of the output lines of a Decoder is connected to a colored LED bulb as given in the diagram.



The functionality of the 2-4 decoder is given below.

Inputs			Outputs			
A2	A1	A0	D0	D1	D2	D3
1	0	0	1	0	0	0
1	1	0	0	1	0	0
1	0	1	0	0	1	0
1	1	1	0	0	0	1
0	X	X	0	0	0	0

- a. What are the input values that must be provided for A2, A1, A0 respectively, to have the BLUE light ON?
- b. What are the input values that must be provided for A2, A1, A0 respectively, to have the GREEN light ON?

$$\begin{array}{l} \text{A2.A1.A0}' \\ 1 \quad 1 \quad 0 \end{array}$$

$$\begin{array}{l} \text{A2.A1'.A0}' \\ 1 \quad 0 \quad 0 \end{array}$$

24

answered

out of

question

25

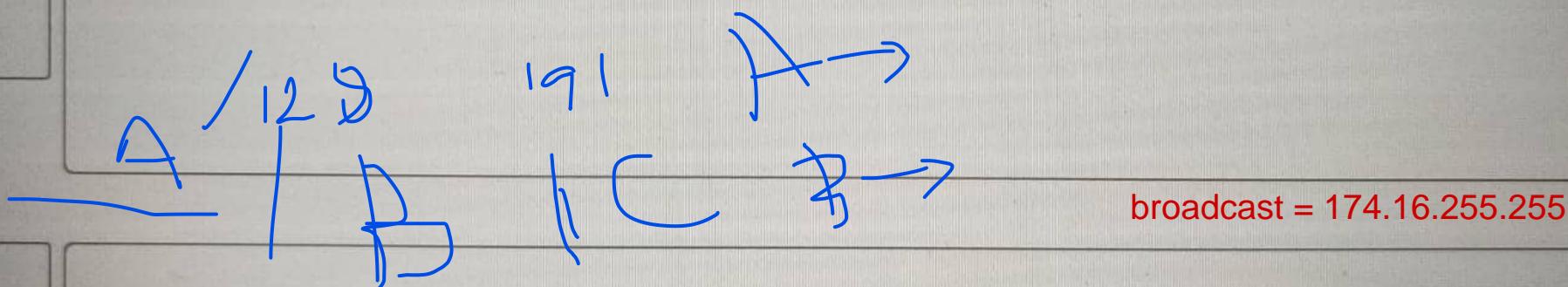
answered

out of

question

LOGIC gates

is comprised with a combinational circuit and memory elements.



For the given IP address find the following.

IP address: - 174.16.20.13

first usable = 174.16.0.1

• Network address:  .  .  .

• Subnet mask:  .  .  .

last usable = 174.16.255.254

no of users = 65,534 ( $2^{16} - 2$ )

ion 29

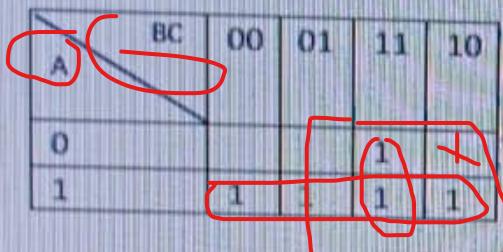
et answered  
ed out of  
ag question

PRACTICE TEST

it21

Consider the following K-Map which is created considering the given output function F.

$$F(A, B, C) = AB'C' + AB'C + ABC + ABC' + A'BC$$



- How many groups can you identify? 2
- What is the simplified output expression according to the groups you identified?
- Assuming  $A'BC'$  is a Don't Care condition, what is the simplified output expression?

$$bc+a$$

$$\overline{b+a}$$

010

a.groups=2  
b.BC+A  
c|

# NetExam

Sri Lanka Institute of Information Technology

Examinations

Lockdown Browser

Practice Test

Consider the following K-Map which is created considering the given output function F.

$$F(A, B, C) = A'B'C' + A'B'C + A'BC' + ABC'$$

		BC	00	01	11	10
		A	0	1	1	X
0	0	1	1	X	1	1
	1					1

$a' + bc'$

- How many groups can you identify? 2
- What is the simplified output expression according to the groups you identified?  $a'b' + bc'$
- Assuming  $A'BC$  is a Don't Care condition, what is the simplified output expression?



a) 2

b)  $BC' + A'B'$

c)  $BC' + A'$

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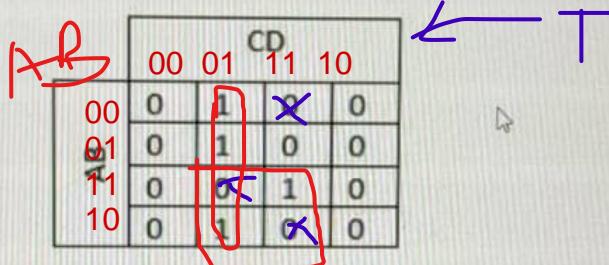
## Question 28

Not yet answered

Marked out of  
10.00

Flag question

One of your friends has come to you with following K-Map that he developed after carefully going through a Truth Table to represent input-output relationships of a real world problem with the aim of designing a combinational circuit.



A. Write the minterm numbers that will be in the Boolean equation represented by the K-Map above. (Ex: use m1 to represent minterm 1)  $m_1 = A'B'C'D$ ,  $m_5 = A'BC'D$ ,  $m_9 = AB'C'D$ ,  $m_{15} = ABCD$

B. After carefully studying the problem again, you found out that it is not a problem even minterms 3, 11, and 13 being 0 or 1. By taking your new findings into consideration, simplify above K-map. Write the simplified Boolean equation in SoP form. (Write  $A\bar{B}C\bar{D}$  as  $AB'CD'$  in your answer. Don't keep spaces between letters)

$$S = c'd + ad$$

C. How many AND gates and OR gates are needed to implement this circuit.

i) AND:

2

ii) OR:

1

A handwritten logic diagram showing the implementation of the Boolean expression  $c'd + ad$ . It uses 'AND' gates (labeled 'ANd') and an 'OR' gate (labeled 'OR'). The inputs are  $c'$ ,  $d$ ,  $a$ , and  $d$ . The first AND gate takes  $c'$  and  $d$  as inputs. The second AND gate takes  $a$  and  $d$  as inputs. The outputs of both AND gates are connected to the inputs of the OR gate.

		CD			
		0	1	0	0
AB	0	0	1	0	0
	1	1	0	0	0
	0	0	1	0	0
	1	1	0	0	0

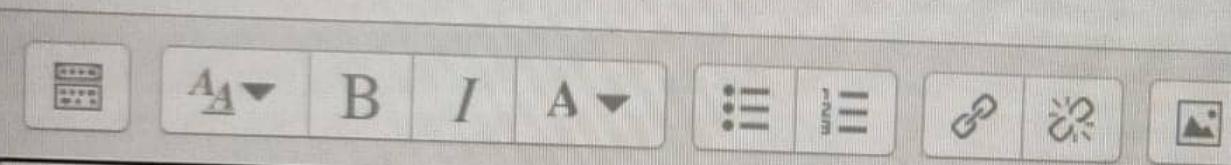
- A. Write the minterm numbers that will be in the Boolean equation represented by the K-Map above. (Ex: use  $m_1$  to represent minterm 1)
- B. After carefully studying the problem again, you found out that it is not a problem even minterms 3, 11, and 13 being 0 or 1. By taking your new findings into consideration, simplify above K-map. Write the simplified Boolean equation in SoP form. (Write  $A\bar{B}C\bar{D}$  as  $AB'CD'$  in your answer. Don't keep spaces between letters)
- C. How many AND gates and OR gates are needed to implement this circuit.

i) AND:

ii) OR:

- A)  $m_1 = A'B'C'D, m_5 = A'BC'D, m_9 = AB'C'D, m_{15} = ABCD$   
 B)  $S = C'D + AD$   
 C) i) 2  
 ii) 1

- a. What are the input values that must be provided for A2, A1, A0 respectively, to have the BLUE light ON?
- b. What are the input values that must be provided for A2, A1, A0 respectively, to have the GREEN light ON?
- c. If you need to have both the RED and GREEN lights ON, what is the modification you need to do to the above circuit?



- a.) A2-1 A1-1 A0-0
- b.) A2-1 A1-0 A0-0
- c.) Remove not gate      I

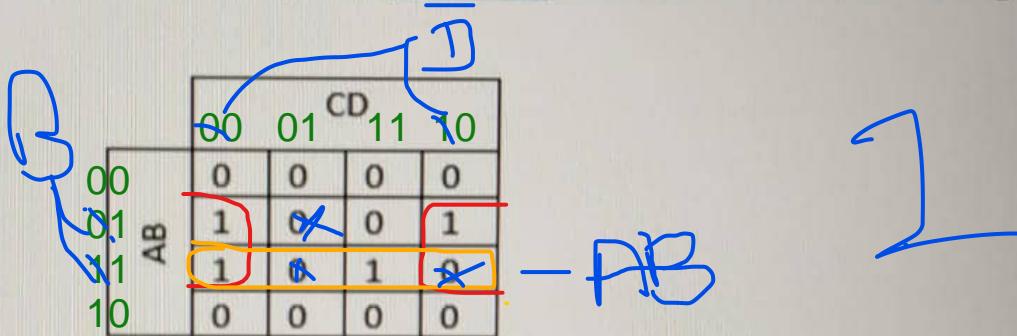
## Question 28

Not yet answered

Marked out of  
10.00

Flag question

One of your friends has come to you with following K-Map that he developed after carefully going through a Truth Table to represent input-output relationships of a real world problem with the aim of designing a combinational circuit.



A. Write the minterm numbers that will be in the Boolean equation represented by the K-Map above. (Ex: use  $m_1$  to represent minterm 1)     $m_4 = A'B'C'D'$  ,  $m_6 = A'BCD'$  ,  $m_{12} = ABC'D'$  ,  $m_{15} = ABCD$

B. After carefully studying the problem again, you found out that it is not a problem even minterms 5, 13, and 14/being 0 or 1. By taking your new findings into consideration, simplify above K-map. Write the simplified Boolean equation in Sop form. (Write  $A\bar{B}C\bar{D}$  as  $AB'CD'$  in your answer. Don't keep spaces between letters)     $s = \underline{BD'} + \underline{AB}$

C. How many AND gates and OR gates are needed to implement this circuit.

i) AND: 2

ii) OR: 1

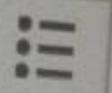
to the above circuit?

A<sub>A</sub> ▼

B

I

A ▼



a. A<sub>2</sub> -1

A<sub>1</sub> -1

A<sub>0</sub> -0

b. A<sub>2</sub> -0

A<sub>1</sub> -0

A<sub>0</sub> -0

c. Remove the NOT gate on the circuit

Broadcast address

Answer:

I

Complete the missing parts of the binary form of following IPv4 address:

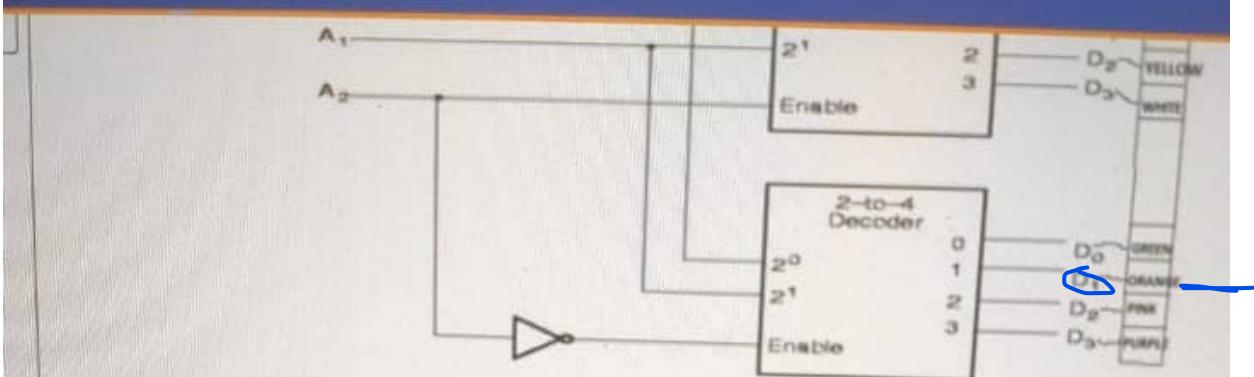
IPv4 Address: 173.18.10.253

- IPv4 Address in Binary:  .  .  .
- IP Address Class:

Examinations

Lockdown Browser

Practice Test



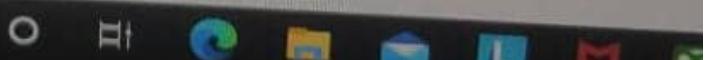
The functionality of the 2-4 decoder is given below.

Inputs			Outputs			
A <sub>2</sub>	A <sub>1</sub>	A <sub>0</sub>	D <sub>0</sub>	D <sub>1</sub>	D <sub>2</sub>	D <sub>3</sub>
1	0	0	1	0	0	0
1	1	0	0	1	0	0
1	0	1	0	0	1	0
1	1	1	0	0	0	1
0	X	X	0	0	0	0

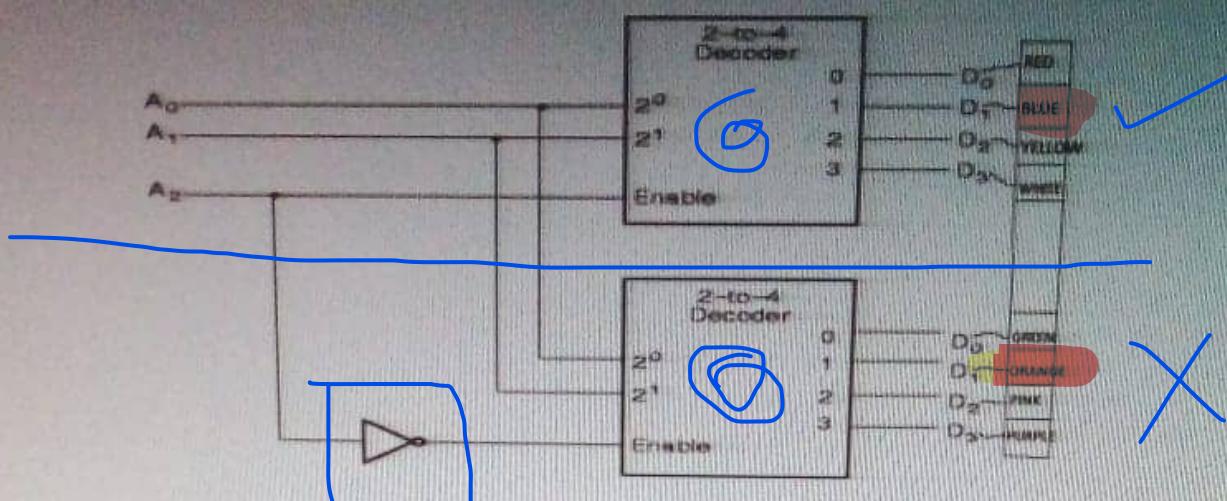
- a. What are the input values that must be provided for A<sub>2</sub>, A<sub>1</sub>, A<sub>0</sub> respectively, to have the ORANGE light ON?
- b. What are the input values that must be provided for A<sub>2</sub>, A<sub>1</sub>, A<sub>0</sub> respectively, to have the RE light ON?
- c. If you need to have both the BLUE and ORANGE lights ON, what is the modification you need to do to the above circuit?

- a) A<sub>2</sub>=0,A<sub>1</sub>=0,A<sub>0</sub>=1  
 b) A<sub>2</sub>=1,A<sub>1</sub>=0,A<sub>0</sub>=0  
 c) remove the not gate which is connected in to A<sub>2</sub>

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Following is the block diagram of a Combinational circuit which is made up of two 2-to-4 Decoders. Assume that each of the output lines of a Decoder is connected to a colored LED bulb as given in the diagram.



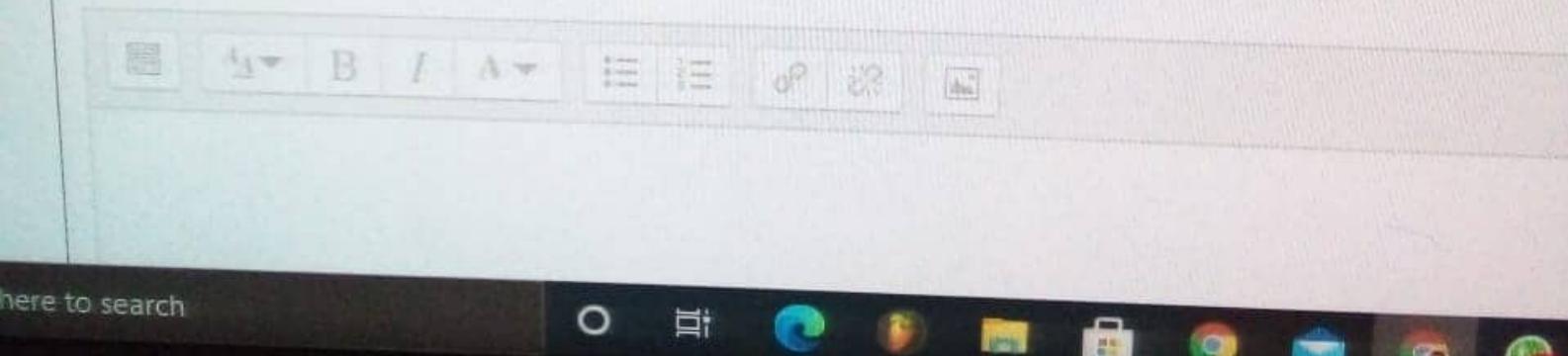
The functionality of the 2-to-4 Decoder is given below.

Inputs			Outputs			
A2	A1	A0	D0	D1	D2	D3
1	0	0	1	0	0	0
1	1	0	0	1	0	0
1	0	1	0	0	1	0
1	1	1	0	0	0	1
0	X	X	0	0	0	0

- a. What are the input values that must be provided for A2, A1, A0 respectively, to have the ORANGE light ON?
- b. What are the input values that must be provided for A2, A1, A0 respectively, to have the RED light ON?
- c. If you need to have both the BLUE and ORANGE lights ON, what is the modification you need to do to the above circuit?

A2=1  
A1=1  
A0=0  
A2.A1.A0'

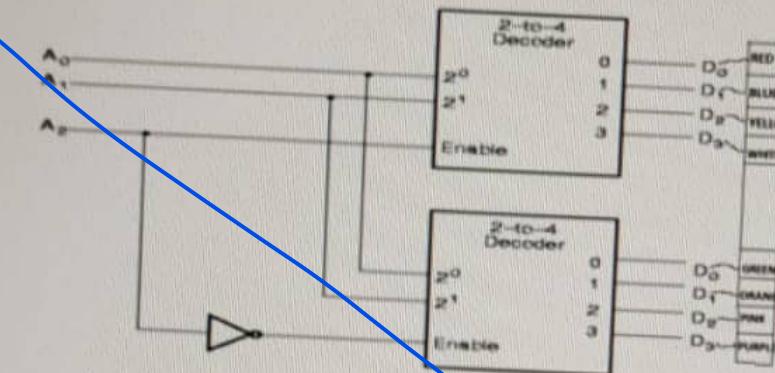
AA2=1  
A1=0  
A0=0  
A2.A1'.A0'



Question 27  
Not yet answered  
Marked out of  
10.00

Flag question

Following is the block diagram of a Combinational circuit which is made up of two 2-4 Decoders. Assume that each of the output lines of a Decoder is connected to a colored LED bulb as given in the diagram.



The functionality of the 2-4 decoder is given below.

Inputs			Outputs			
A <sub>2</sub>	A <sub>1</sub>	A <sub>0</sub>	D <sub>0</sub>	D <sub>1</sub>	D <sub>2</sub>	D <sub>3</sub>
1	0	0	1	0	0	0
1	1	0	0	1	0	0
1	0	1	0	0	1	0
1	1	1	0	0	0	1
0	X	X	0	0	0	0

- What are the input values that must be provided for A<sub>2</sub>, A<sub>1</sub>, A<sub>0</sub> respectively, to have the BLUE light ON?
- What are the input values that must be provided for A<sub>2</sub>, A<sub>1</sub>, A<sub>0</sub> respectively, to have the GREEN light ON?
- If you need to have both the RED and GREEN lights ON, what is the modification you need to do to the above circuit?

- e. IP Address is a physical Address

Question 12

Not yet answered

Marked out of

0

Flag question

Match the correct Security Term to given Courseweb scenarios.

A log file keeps a record on what time a student submitted a file to Courseweb.

Lecturers are allowed to delete files in Courseweb but Students Can only view the file.

Using a username and password to login to Courseweb.

Choose...

Choose...

Authoriza

Accountin

Authentic

Question 13

Not yet answered

Marked out of

0

Flag question

Select the correct statement about hubs.

Select one:

- None of the given statements are true.

18

answered  
out of  
question

Which of the following is not a benefit of the layered networking model?

Select one:

- a. Changes in one layer do not affect other layers
- b. Provides a common language
- c. Create a competition between vendors
- d. Allows one organization to control the protocol design
- e. Assists in protocol design

19

et answered  
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Flag question

Which of the following is not a responsibility of the Data Link layer?

Select one:

- a. Physical addressing (MAC address)
- b. Access control
- c. Flow control
- d. Routing
- e. Framing – Ethernet frame

20

ot yet answered

marked out of

50

Flag question

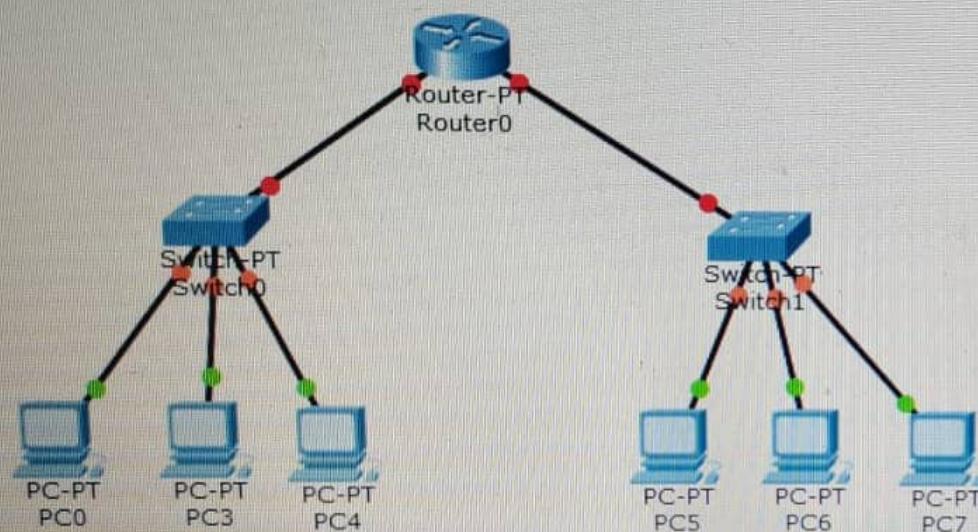
Which of the following statement is true regarding the given figure?



Type here to search



Which of the following statements describe the network shown in the graphic? (Select two)



Select one or more:

- There are total number of four collision domains in the network.
- There are total number of six broadcast domains in the network.
- There are total number of two broadcast domains in the network.
- There are total number of eight collision domains in the network.
- There are total number of seven collision domains in the network.
- There are total number of four broadcast domains in the network.

- Modem
- Router
- Firewall
- Switch
- Hub

Match the correct Security Term to given Courseweb scenarios.

A log file keeps a record on what time a student submitted a file to Courseweb.

Lecturers are allowed to delete files in Courseweb but Students Can only view the file.

Using a username and password to login to Courseweb

Choose...

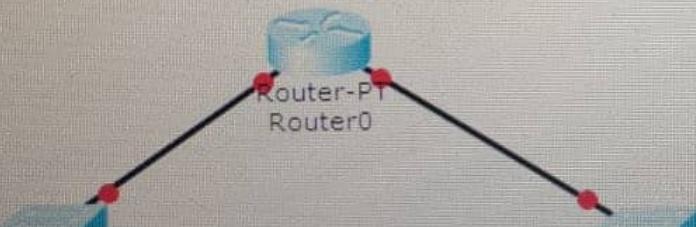
Choose...

Authentication

Accounting

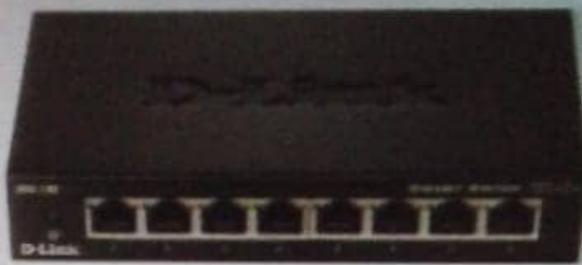
Authorization

Which of the following statements describe the network shown in the graphic? (Select two)

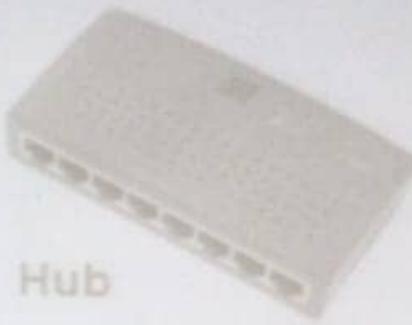


O e. Framing – Ethernet frame

Which of the following statement is true regarding the given figure?



Repeater



Select one:

- a. These devices are used to build a LAN
- b. These devices are used to build a PAN
- c. These devices cannot be used to create a network
- d. These devices are used to connect multiple networks

Type here to search



DELL

- b. Provides a common language
- c. Allows one organization to control the protocol design
- d. Assists in protocol design
- e. Changes in one layer do not affect other layers

Question 10

Not yet answered

Marked out of  
0.50

 Flag question

Coaxial cables are widely used in applications such as,

Select one:

- Computer communication.
- Television distribution.
- Microwave communication.
- Satellite communication.
- None of the mentioned is true.

Question 11

Which of the following statement is true?

**Question 26**

Not yet answered

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 Flag question

A semiconductor memory cell is fabricated with

I

service Attack (DoS) using ping command

program attached to another program to execute a particular u

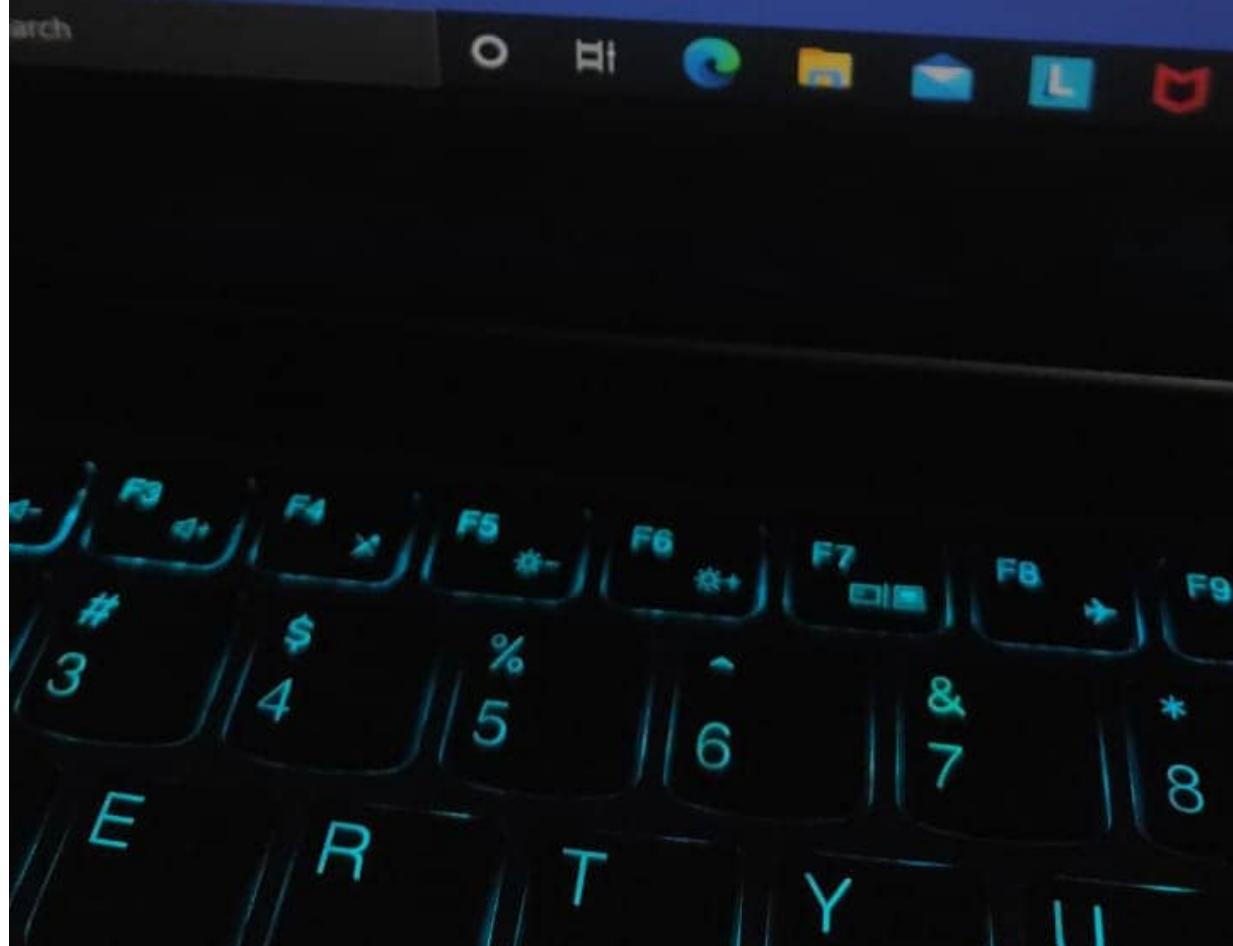
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correct port category description to port numbers.

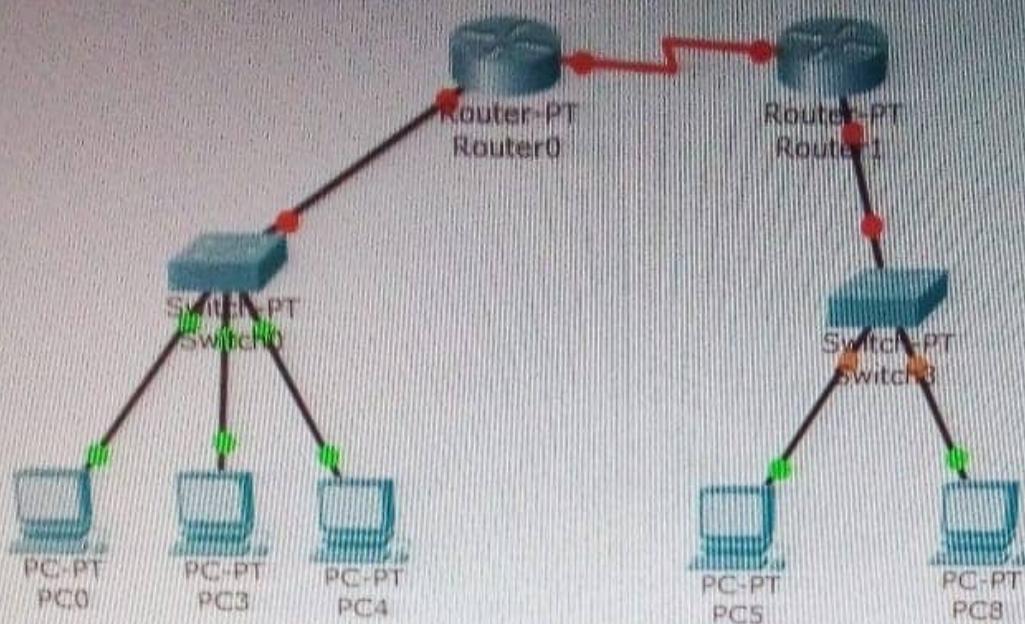
ed port numbers 1024 to 49151 ▾

own port numbers 0 to 1023 ▾

nic/Private port numbers 49152 to 65535 ▾



Which of the following statements describe the network shown in the graphic? (Select two)



Select one or more:

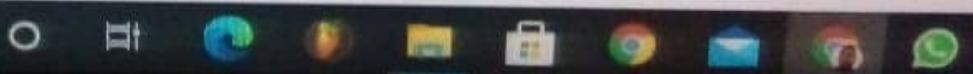
- There are total number of three broadcast domains in the network.
- There are total number of two broadcast domains in the network.
- There are total number of four broadcast domains in the network.
- There are total number of seven collision domains in the network.
- There are total number of four collision domains in the network.
- There are total number of eight collision domains in the network.

Which of the following is not a benefit of the layered networking model?

Select one:

- a. Changes in one layer do not affect other layers
- b. Provides a common language

here to search



DELL

- None of the mentioned is true.
- Computer communication.

**Question 16**

Not yet answered

Marked out of  
0.50 Flag question

Match the given addresses to appropriate network addressing term.

172.16.10.9

2001:db8:85a3::8a2e:370:7334

255.255.255.0

34-F3-9A-36-68-BB

255.0.0.0

- 
- IPv4 Address
- IPv6 Address
- Class A Subnet Mask
- Class C Subnet Mask
- MAC Address**

**Question 17**

Not yet answered

Marked out of  
0.50An attacker trying to manipulate  
as Social Engineering.

Select one:

Converged networks carry social networking data.

Match the given address to the correct address type.

FE80:CD00:0000:0CDE:1257:0000:211E:729C

IPv6 Address

203.147.23.20

IPv4 Address

00:1B:44:11:3A:B7

MAC Address



in 16

not answered

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- None of the mentioned is true.

**Question 11**

Not yet answered

Marked out of

0.50

Flag question

Which of the following statement is true?

Select one:

- a. IP Address is a physical Address and MAC Address is a logical Address
- b. IP Address is a logical Address and MAC Address is a physical Address
- c. MAC Address is logical address
- d. Both IP and MAC addresses are virtual addresses
- e. IP Address is a physical Address

**Question 12**

Not yet answered

Marked out of

0.50

Flag question

Match the correct Security Term to given Courseweb scenarios.

A log file keeps a record on what time a student submitted a file to Courseweb.

Choose... ▾

Lecturers are allowed to delete files in Courseweb but Students Can only view the file.

Choose... ▾

Using a username and password to login to Courseweb

Choose... ▾

**Question 13**

Select the correct statement about hubs.

Finish atte

Time left 1

MCQ QUES

1 2

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17 18

STRUCTURE

21 22 2

ESSAY QUESTI

27

ESSAY QUESTIO

28

Match the given addresses to appropriate network addressing term.

255.0.0.0

Class A Subnet Mask

34-F3-9A-36-68-BB

MAC Address

2001:db8:85a3::8a2e:370:7334

IPv6 Address

255.255.255.0

Class C Subnet Mask

172.16.10.9

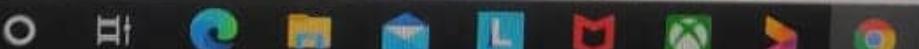
IPv4 Address

Which of the following is not a benefit of the layered networking model?

Select one:

- a. Provides a common language
- b. Changes in one layer do not affect other layers
- c. Allows one organization to control the protocol design
- d. Create a competition between vendors
- e. Assists in protocol design

Type here to search



96%

80°F Rain showers

Sri Lanka Institute of Information Technology

Examinations

Dashboard

Question 1  
Not yet answered  
Marked out of  
0.50  
Flag question

Inbox (12) - it21304... (1) WhatsApp YouTube anim...

Dashboard Lockdown Browser Practice Test

Match the correct port category description to port numbers.

Dynamic/Private port numbers  
Registered port numbers  
Well-known port numbers

49152 to 65535  
1024 to 49151  
0 to 1023

Question 2  
Not yet answered  
Marked out of  
0.50  
Flag question

Select the most suitable statement.

Select one:

- Converged networks are private networks.
- Converged networks carry data, voice, video & images over the same network.
- None of the given statements are true.
- Converged networks carry social networking data.
- Converged networks are LANs.

ESSAY 27  
ESSAY 28

Which of the following statements describe the network shown in the graphic? (Select two)

Scanned with CamScanner