



q1 128 64 32 16 8 4 2 1

A)

1 1 1 0 0 1 1 1

$128 - 64 - 32 - 16 - 8 - 4 - 2 - 1 = 0$

$A) = 11100111_2$

!!)

0 1 1 0 0 0 1 0

$98 - 64 - 32 - 2 = 0$

$A) = 01100010_2$

B)

$I) 128 + 64 + 32 + 16 + 0 + 0 + 0 + 1 = 111_2$

$I) = 111_2$

$I) 128 + 64 + 0 + 16 + 0 + 4 + 0 + 1 = 85_2$

$I) = 85_2$

C)

8 4 2 1 8 4 2 1
0 1 1 1 1 1 1 1

$I) = 01111111_2$

$I) 128 + 0 + 16 + 0 + 16 + 0 + 16 + 0 = 101_2$

$I) = 10111101_2$

D)

$I) 128 + 0 + 16 + 0 = 144_2$

$I) = 165_2$

$64 + 32 + 16 + 8 + 4 + 2 + 1 = 63_2$

$I) 63_2$

3)

F)

I) $1920 \times 1080 \times 32 = 66,355,200 \text{ bits}$

2 ✓

II) $66,355,200 \div 20 = 3,317,760 \text{ bits}$

2 ✓

III) ~~$5,512,960 \div 1000 = 5512.96 \text{ MB}$~~

IV) $66,355,200 \div 2000 = 3317.76 = 3.31776 \text{ MB}$

I) 54MB

4 ✓

II 7.2GB

4 ✓

III 10GB

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A)

I) Address bus is non bidirectional and stores location data.
It allows the processor to send information and data to the right location.

II) Control bus is bi-directional and sends logic signals controlling the flow of data.

2 ✓

III) The data bus transfers data between two locations. It is bi-directional.

2 ✓

b) The data and control bus are bi-directional, meaning data can flow in either direction but only one direction at a time. This allows the control bus to control logic on both ends of a card and data to be returned to its source after being computed.

2 ✓

c) The advantage of a USB is it is a universally recognised input/output. USB ports are backwards compatible for ~~most~~ newer version of USB. They can come with firmware installed allowing devices to be detected and drivers installed. They are hot-swappable. They are currently developed and improved, USB controllers are cheap. The disadvantages are older version will limit data transfer speeds of some non-proprietary into them. USB memory sticks can be susceptible to damage and data loss if removed incorrectly. It can only put a low current load to a device to power it. The ~~right~~ write speed/transfer rate of a controller is slower than modern SSD and M2 drives.

(43)

a)

The issue one the system is running 32bit which is better than the system. The system can also only run 3.11 GB of the 32 GB of memory installed. This could be limited back to being left-handed. My the 32 bit system as well as the 64 bit board not being compatible with 32 GB of RAM. My advice would be to upgrade to 64 bit initially to see an improvement. Check memory to memory. Then check if the system board is compatible with such high quantity of RAM. Ensure RAM is firmly installed and seated correctly in the slots provided. Consider using two sticks only to see if any RAM is changed by swapping in and out RAM sticks. If the system board is not compatible it may require replacing.

4/

6/

3)

I) Virtual memory is when a section of the
RAM is used to improve processing time for
memory intensive tasks

II) A page fault is when there is an error
accessing memory

III) Disk thrashing is when RAM is used less at
maximum for a long period of time

C) The task manager allows you to view
CPU usage. It allows you to end tasks
and program. It allows you to edit
tasks run as startup. It allows you to
see memory usage. It allows you to
enable/disable start-up and end services.

3/

44

a) Change default router password from
manufacturer for extra security. Ensure you have
a configuration package to protect network. Ensure
fire wall is enabled to secure network. Ensure
extra security is provided security only allow
trusted users access to resources. Regularly scan
devices for potential viruses. That may
have access to resources. Monitor devices connected
to network to ensure all are trusted devices
Regularly stop anyone who does gain access
in soon as possible. Limit the number
of devices allowed on a network. Use a
access point for wireless devices with a
central list limiting access to administrative
controls on the router that allow making
changes to the FTP.

6/

B) The typical Internet protocol with address look

like 168.191.11.12.

The limitation of IPv4 32-bit system are that there

is a finite number of address available worldwide

total. The last octet of the address is not

255.255.255.255 are known as the subnet

mask and divide the many devices can be

on a network.

C)

DHCP stands for Dynamic Host Configuration

protocol. It is applied to a network. It is

used device connecting to a network. It is

step 1500 from occurring when two devices

have the same address this can be used

when working with wireless networks.

2/

2/

[illegible]