

Department of Electrical Engineering
Assignment
Date: 14/04/2020

Course Details

Course Title: Data & computer communications Module: 6th
Instructor: Zulqamain Abbasi Total Marks: _____

Student Details

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Part A (Objective Type)

Flow control

1. _____ is the regulation of the amount of data that can be sent.
 - a. Line Discipline
 - ✓ b. Flow Control
 - c. Error Control
 - d. All of the above

2. Forty-five physical channels link 10 devices arranged in a mesh topology.
 - a. Nine
 - b. Ten
 - c. Twelve
 - d. Fifteen

3. Signals reflection at the taps can cause signal degradation in a BUS topology.
 - a. Ring
 - b. Bus
 - c. Mesh
 - d. Star

Session

4. _____ layer allows a process to add synchronization points into stream of data.
 - a. Network
 - b. Transport
 - c. Presentation
 - ✓ d. Session

5. If the maximum value of a simple sine wave is 10 volts, the minimum value is -10 volts.

- a. 10
- b. 5
- c. Square root of 10
- d. -10

-10

6. Choose the correct association between a device and its functionality

- a. Computer Printer
- b. CPU Input
- c. LCD Input
- d. Modem Modulation and Demodulation

cpu Input

Fill in the Blanks

- 7. Baud rate is always less than or equal to ____ rate.
- 8. Stop-and-wait is a ____ technique.
- 9. A _____ is uniquely identified by an IP address and a port number.
- 10. In ____ layer of TCP/IP model port address are defined.

Answer :-

7. Bit

8. Flow control

9. 32 bit number

10. Five

Q No :- 1

Ans :-

OSI Model The Role of Shayan, Tariq, Nawaz, and Danish

S no.	Sender	Role	Receiver	Example	S no.
01	Andy		Application Layer		07
02	Parvez		Presentation Layer		06
03	Shayan	This layer adds some checkpoints when transmitting the data in a sequence. If some error occurs in the middle of the transmission of data, then the transmission will take place again from the checkpoint. This process is known as Synchronization and recovery.	Session Layer	RPCs and NFS are the examples of the session layer.	05

04	Tariq	This layer can be termed as an end-to-end layer as it provides a point-to-point connection between source and destination to deliver the data reliably.	Transport Layer	TCP and UDP protocols.	04
05	Danish	This Layer receives the packets from the upper layer and converts them into packets. This process is known as Packetizing. It is achieved by Internet protocol (IP).	Network Layer	IP, IPX and AppleTalk are the examples of this layer.	03
06	Nawaz	It provides a logical connection between different devices.	Data-Link Layer	HDLC, PPP and Frame Relay are the examples of this layer.	02
07	Pual		Physical Layer		01

Q No :- 1 (Part : B)

Ans :-

Data is independent of signal level & it cannot achieve data higher than channel capacity :-

Channel capacity :- In electrical engineering, computer science, and information theory, is the tight upper bound on the rate at which information can be reliably transmitted over a communication channel.

In the terms of the noisy-channel coding theorem, the channel capacity of a given channel is the highest information rate (in units of information per unit time) that can be achieved with arbitrarily small error probability.

Information theory, developed by Claude E. Shannon in 1948, defines the notion of channel capacity and provides a mathematical model by which one can compute it. The key result states that the capacity of the channel, as defined above, is given by the maximum of the mutual information between the input and output of the channel, where the maximization is with respect to the input distribution. [3]

The notion of channel capacity has been central to the development of modern wireline and wireless communication systems, with the advent of novel error correction coding mechanisms that have resulted in achieving performance very close to the limits promised by channel capacity.

Q No :- 2

Ans :-

Some Time The sender send the information but the are not received these problem to overcome into the following Methods are used:-

If your incoming email used to work and suddenly stopped working, the issue is probably one of the following:

- [Email Account Over Quota ↗](#)
- [cPanel Account Over Quota ↗](#)

If your email has never worked on our servers, then the cause might be one of these issues:

- [DNS Configuration ↗](#)
- [Email Client Settings ↗ :-](#)

Email Account Over Quota :-

Each email account is created with a set quota, which is the amount of disk space allotted to a particular email address for email storage. This quota was set when you created or modified the email account in cPanel and can be set to be unlimited or to a fixed size.

The most common reason incoming email might not be received is the email account exceeding its quota. To resolve this, you will need to increase the amount of disk space for that email account to receive mail again. Alternately, you can delete email in the email account until it is below the email quota.

Check Quota.

To test your email account's quota:

- Send an email to the email account in question. If the mailbox is full, you will receive a bounceback message stating that the disk space has been exceeded.
- Check the email quota for the account directly by clicking on the Email Accounts icon in cPanel. Check to make sure the Usage is not higher than the Quota for the account in question

Change your Quota:-

To change an email account's quota:

1. Log Into cPanel.
2. Navigate to the Email section.
3. Select the Email Accounts icon.
4. Scroll down to the email address for which you need to update the quota resources.
5. Next to the desired email address, click Change Quota.
6. Either type in the new quota amount or select the Unlimited option.
7. Click Change Quota.

cPanel Account Over Quota:-

Another possible cause of not receiving emails is that the entire cPanel is over its allotted disk quota. If this is the case, you will need to increase your disk quota to receive mail again.

Note: This step applies only to cPanel settings under WHM in Reseller, VPS or Linux Dedicated Server environments. HostGator Shared packages have no quota and unlimited disk space.

★ Check Disk Space

To check for accounts over quota:

1. Log In to WHM.
2. Navigate to Account Information section in the left-side menu.
3. Select Show Accounts Over Quota.

You can also check the available disk space in a specific cPanel by looking for Disk Space Usage in the left-side panel. If disk space is maxed out or exceeded, you will need to raise the disk space quota on the cPanel's package by changing the package in WHM or by creating a new package and assigning it to the cPanel.

Increase Disk Space Quota:-

To increase your client's disk space:

1. Log In to WHM.
2. Navigate to the Account Functions section in the left-side menu.
3. Select Quota Modification.
4. Select the username or cPanel primary domain for the user whose quota you wish to modify.
5. Click Modify.
6. Adjust Disk Space Quota as desired.
7. Click Save.

DNS Causes

There are some common issues involving DNS that could cause email to not be received.

Propagation

If you recently updated nameservers, MX or A records, you may be experiencing the effect of propagation. Once the propagation period has elapsed, everything should work properly. For more information on propagation, see this article:

[Propagation Times](#)

Incorrect DNS

Incorrect DNS records can affect how your mail functions. For information on DNS settings, see:

How to Change DNS Zones (MX, CNAME and A Records)

Mail Server Settings

Please ensure that your mail settings are correctly set. You can have your mail and your website hosted at two different locations, but this requires correctly setting your mail server set as either local or remote.

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Briefly, if you are using the local server based DNS, then you will need to have your mail server set as local. If you are outsourcing your mail through remote MX records or have mail directed to another server through A records, then you will need to make sure that you have the server setting to remote.

More Information on mail settings can be found here:

Mail Exchange Record, what to put for your MX record

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Mail Client Settings :-

Customers using MicroSoft-related email services (Outlook.com, Hotmail.com, MSN.com and Live.com) may note a problem with receiving emails from hostgator.com addresses via these services, while still receiving messages from elsewhere. This can be resolved by following the steps found in this article:

Whitelist HostGator for Outlook, Hotmail, MSN or Live Email

If you are using a third party mail client, make sure that the incoming mail server settings and ports are correct. If these settings are incorrect, you will still be able to receive your mail via webmail, however you will need to correct the account settings in your mail client so that you may begin to receive your mail again.

You might also try closing out the program and reopening it, as it is possible that your mail client might be malfunctioning or has not saved your settings.

For more information on settings for email clients, see this article:

Outlook / Eudora / Thunderbird / Mac / iPad / Phone Client Settings

Q No :- 3

Ans:-

Data Transfer over long Distance Into The following Technique Are used:-

1. Physical transfer
2. Command line tools and APIs
3. Graphical Interface
4. Data pipeline
5. Key Selection Criteria

There are several options for transferring data to and from Azure, depending on your needs.

1. Physical transfer:-

Using physical hardware to transfer data is a good option when.

- Your network is slow or unreliable.
- Getting additional network bandwidth is cost-prohibitive.
- Security or organizational policies do not allow outbound connections when dealing with sensitive data.

There are two main options for physically transporting data

Example:-

- **Azure Import/Export:-**

The Azure Import/Export service lets you securely transfer large amounts of data to Azure Blob Storage or Azure Files by shipping internal SATA HDDs or SSDs to an Azure datacenter. You can also use this service to transfer data from Azure Storage to hard disk drives and have these shipped to you for loading on-premises.

- **Azure Data Box.**

Azure Data Box is a Microsoft-provided appliance that works much like the Azure Import/Export service. Microsoft ships you a proprietary, secure, and tamper-resistant transfer appliance and handles the end-to-end logistics, which you can track through the portal. One benefit of the Azure Data Box service is ease of use. You don't need to purchase several hard drives, prepare them, and transfer files to each one. Azure Data Box is supported by a number of industry-leading Azure partners to make it easier to seamlessly leverage offline transport to the cloud from their products.

2. Command line tools and APIs:-

Consider these options when you want scripted and programmatic data transfer.

- **Azure CLI :-**

The Azure CLI is a cross-platform tool that allows you to manage Azure services and upload data to Azure Storage.

- **AzCopy :-**

Use AzCopy from a Windows or Linux command-line to easily copy data to and from Azure Blob, File, and Table storage with optimal performance. AzCopy supports concurrency and parallelism, and the ability to resume copy operations when interrupted. You can also leverage AzCopy to copy data from AWS to Azure. For programmatic access, the Microsoft Azure Storage Data Movement Library is the core framework that powers AzCopy. It is provided as a .NET Core library.

- **PowerShell :-**

The Start-AzureStorageBlobCopy PowerShell cmdlet is an option for Windows administrators who are used to PowerShell.

- **AdlCopy :-**

AdlCopy enables you to copy data from Azure Storage Blobs into Data Lake Store. It can also be used to copy data between two Azure Data Lake Store accounts. However, it cannot be used to copy data from Data Lake Store to Storage Blobs.

- **Distcp :-**

If you have an HDInsight cluster with access to Data Lake Store, you can use Hadoop ecosystem tools like Distcp to copy data to and from an HDInsight cluster storage (WASB) into a Data Lake Store account.

- **PolyBase :-**

PolyBase is a technology that accesses data outside of the database through the T-SQL language. In SQL Server 2016, it allows you to run queries on external data in Hadoop or to import/export data from Azure Blob Storage. In Azure Synapse Analytics, you can import/export data from Azure Blob Storage and Azure Data Lake Store. Currently, PolyBase is the fastest method of importing data into Azure Synapse.

- **Hadoop command line :-**

When you have data that resides on an HDInsight cluster head node, you can use the `hadoop -copyFromLocal` command to copy that data to your cluster's attached storage, such as Azure Storage blob or Azure Data Lake Store. In order to use the Hadoop command, you must first connect to the head node. Once connected, you can upload a file to storage.

3. Graphical Interface :-

Consider the following options if you are only transferring a few files or data objects and don't need to automate the process.

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Example:-

- **Azure Storage Explorer.**

Azure Storage Explorer is a cross-platform tool that lets you manage the contents of your Azure storage accounts. It allows you to upload, download, and manage blobs, files, queues, tables, and Azure Cosmos DB entities. Use it with Blob storage to manage blobs and folders, as well as upload and download blobs between your local file system and Blob storage, or between storage accounts.

- **Azure portal.**

Both Blob storage and Data Lake Store provide a web-based interface for exploring files and uploading new files one at a time. This is a good option if you do not want to install any tools or issue commands to quickly explore your files, or to simply upload a handful of new ones.

3. Data pipeline:-

Azure Data Factory. Azure Data Factory is a managed service best suited for regularly transferring files between a number of Azure services, on-premises, or a combination of the two. Using Azure Data Factory, you can create and schedule data-driven workflows (called pipelines) that ingest data from disparate data stores. It can process and transform the data by using compute services such as Azure HDInsight Hadoop, Spark, Azure Data Lake Analytics, and Azure Machine Learning. Create data-driven workflows for orchestrating and automating data movement and data transformation.

4. Key Selection Criteria.

For data transfer scenarios, choose the appropriate system for your needs by answering these questions:

- Do you need to transfer very large amounts of data, where doing so over an Internet connection would take too long, be unreliable, or too expensive? If yes, consider physical transfer.
- Do you prefer to script your data transfer tasks, so they are reusable? If so, select one of the command line options or Azure Data Factory.
- Do you need to transfer a very large amount of data over a network connection? If so, select an option that is optimized for big data.
- Do you need to transfer data to or from a relational database? If yes, choose an option that supports one or more relational databases. Note that some of these options also require a Hadoop cluster.