

**Final Term Paper (Spring - 2020)**  
**Cloud Computing**

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**Note: Attempt all Questions. Answers should be in your own words. Plagiarism will not be tolerated, if detected, it will lead to failure.**

**Question No. 1:** (20)

- a. Explain in detail network and cloud-based storage.

**Question No. 2:** (20)

- a. Explain in detail web application and multitenant technology.
- b. Explain in detail cloud security threats.

**Question No. 3:** (10)

- a. Briefly describe following.
  - a. Advantages and disadvantages of cloud computing.
  - b. Collaborative meeting in cloud.

**Q1:**

- **Cloud storage:**

Cloud storage is a cloud computing model that stores data on the Internet over a cloud computing supplier who accomplishes and works data storage as a service. It's provided on demand with just-in-time size and prices, and removes purchasing and managing your own data storage infrastructure. This gives you quickness, global scale and stability, with "anytime, anywhere" data access.

Cloud storage is bought from a third party cloud retailer who keeps and controls data storage size and sends it over the Internet in a pay-as-you-go model. These cloud storage retailers manage capability, security and stability to make data available to your applications all around the world.

Applications access cloud storage through outdated storage protocols or straight via an API. Many retailers offer corresponding services planned to help gather, achieve, protect and consider data at huge scale.

## **1. Benefits of Cloud Storage:**

Storing data in the cloud Information Technology departments make over three areas:

### **1. Total Cost of Ownership:**

With cloud storage, there is no hardware to buying, storing to setting up, or money being used for "someday" situations. You can add or remove size on request, swiftly change performance and retaining features, and only pay for storage that you really use. Less habitually retrieved data can even be automatically encouraged to lower cost levels in agreement with auditable rules, driving saving of scale.

### **2. Time to Deployment:**

When development teams are prepared to perform, infrastructure should never slow them down. Cloud storage agrees IT to rapidly provide the particular amount of storage wanted, right when it's required. This allows IT to attention

on solving difficult application problems in its place of having to achieve storage systems.

### **3. Information Management:**

Integrating storage in the cloud makes a incredible control point for new use cases. By using cloud storage lifespan management rules, you can achieve powerful data organization responsibilities including automated locking down data in funding of agreement requests.

## **2. Cloud Storage Requirements:**

### **1. Durability:**

Data should be unnecessarily stored, perfectly across numerous services and numerous devices in each ability. Natural misadventures, human error, or automated errors should not result in data injury.

### **2. Availability:**

All data should be accessible when wanted, but there is a modification between production data and records. The perfect cloud storage will supply the right stability of recovery times and rate.

### **3. Security:**

All data is preferably converted, both at rest and in transfer. Authorizations and access controls should work just as well in the cloud as they do for on locations storage.

## **3. Types of Cloud Storage:**

There are three types of cloud data storage. Each offers their own advantages and has their own use cases:

1. Object Storage
2. File Storage
3. Block Storage

**Example:**

- iCloud.
- Google drive.
- Drop Box.
- Microsoft One drive.

**Network:**

**Definition:**

A network contains of two or more than two PCs or mobiles phones are attached with each other to transfer data, resources, such as CDs, USB, Printers, agree to electronics statement, emails, send messages, and also give-and-take files. The network are made or linked through cable, radio waves, satellites, telephone line and electromagnetic light beams.

**1. Following are some benefits of networks which given below:**

1. It offers a raised area to interconnect the operator with each other in a network.
2. It agrees us to segment information and resources.
3. Make it thinkable to track and observer to use of resources.
4. Create it possible to stock information in a make compact site where the server situated.
5. The situation helps up in decreasing the necessary numbers of devices.

6. The situation allows us to appliance the security policies.
7. The situation allows various consumers to works on a only project.

## **2. Purpose of a Network:**

**Following are some of the main purpose of a network or computer network:**

- 1. Data Sharing.**
- 2. Resources Sharing.**
- 3. Application Sharing.**

### **1. Application Sharing:**

- It allows us to transfer information and resources.
- It also allows us to transfer the application in a network.
- One application is fixed on a server side where as other are installed on a customer's side.
- Mutually are used by sending and receiving a information between each other.

### **2. Data Sharing:**

Networking are agrees us to send information b/w linked devices like computer, mobile phone, and printers etc. if there was no networking idea to sharing information b/w dissimilar devices are too problematic.

For Example

We want to send data to other computer which I do data sharing on systematic basis. If there is no network the information between two computers are done by the following method.

If I want to send my data to other computer. I must use external devices like CD, DVD, USB, and Bluetooth. Move that external devices to other computer which I want to send data. The receiver PC read and copies of the data from individuals external devices.

If I am working in a large association the sharing of information happen 100 or more than 100 times which are problematic to do this.

For this networking are greatest resolution to share data between linked devices in huge volume of data I can send simply.

### **3. Resource sharing:**

Networking agrees us to transfer devices among the PCs. By distributing the devices, we can decrease the number of necessary modules in the network. We can transfer a lone printer in a complete network.

### **3. Devices which are used for network are given below:**

- Routers.
- Switches.
- Bridges.
- Interface Cards.
- Hub.
- Firewalls.

**Q2:**

**Part a:**

### **Web application:**

A web application is a computer application software package that used web browsers and web technology to execute the task by provided that internet service.

Web technologies like:

- URL,
- HTTP,
- HTML,

- XML etc.

### **1. Types of web application:**

- Content management system.
- Portal web apps.
- Static web.
- E-Commerce web.
- Dynamic web.
- Animated.

### **2. Three-Tires Model of web application:**

1. Application layer.
2. Presentation Layer.
3. Data link Layer.

#### **1. Presentation Layer:**

- Presentation layer are the top layer of web application and show info in the form of GUI (Graphical User Interface).
- It is also called frontend layer of application and interface that end consumer will interrelate over the web established application.
- It is industrialized on web improvement agenda like:
  - HTML,
  - CSS,
  - and JavaScript, JQuery.

#### **2. Application Layer:**

- ❖ Application layer are also called middle or in-between level, commercial or sensibleness level.
- ❖ Layer is placed below form presentation layer.
- ❖ Application layer are control the main functionality of application by execution complete processing.
- ❖ Layer are established in program design language like
  - Java,
  - Python,
  - C,
  - C++,
  - C#,
  - R .NET etc.

### **3. Data link layer:**

- ❖ Data link layer are also called databank layer because in this layer database servers which are used to collection and recovered data.
- ❖ In this layer data management are self-governing from application server but it can opened by a program like:
  - Mongo Database,
  - Oracle,
  - MySQL,
  - Microsoft SQL server.

### **Example:**

- Facebook.

- Instagram.
- Gmail.
- Daraz.com.
- OLX.com

## **Multitenant technology:**

Multi-tenant applications allow isolation for simultaneous users. Each user's data and configuration remain private to other users. The users can edit or customize the user interface, data model, business process and also control the access of many user applications.

### **1. Common Characteristics of Multi-tenant Applications Include:**

- Data Security.
- Recovery
- Usage isolation.
- Scalability.
- Data tier isolation.

**Q2:**

**Part b:**

### **Cloud security threats:**

Cloud security threats refer to attackers or hackers who access and utilize your cloud computing resources or information to the end users, companies and other cloud providers.

- **Security Risk of cloud computing:**

**Following are some of the security risk of cloud computing:**

**1. Data Loss:**

Data loss is occurring due to man-include disasters as a result of human error or system fault. It is also happens by the attack of hacker to access your data and used it for their own purpose. Data loss means all of your data have been loss which you have collective for many years.

**2. Insufficient Authorization based attack:**

It is a situation when a user gets direct access to IT resources which are supposed to be accessed by trusted users only. Happens when a broad access is provided to the IT resources and due to erroneously.

**3. Data Breach:**

Data leak is one the most widespread cloud security issue. This usually occurs as a result of a cloud computing security attack, when unauthorized users or programs gain access to confidential data and can view, copy, or send it.

**4. Account Hijacking:**

Even if your employees don't use default, unsecured passwords, hackers can still "guess" credentials, get access to your cloud using your staff account, and, as a result, steal your data to your business processes in public. This is called "account hijacking."

**5. Denial of service(DoS):**

Denial of Service (DoS) attacks can turn off your cloud services, making them temporarily or block unavailable to users. This can

be done by flooding the system with extensive traffic, which the server cannot buffer, or crashes by taking advantage of bugs, error.

**Q3:**

**Part : a.**

### **Advantage and disadvantage of cloud computing:**

#### **1. Advantage:**

**Following are advantage of cloud computing:**

- Easy Execution.
- No hardware necessary.
- Availability.
- Price Discount.
- Flexibility for progress.
- Competence recovery.
- Security.
- Reliability.

#### **2. Disadvantage:**

**Following are disadvantage of cloud computing:**

- No Long in controller.
- May no get all the services.

- No Unemployment.
- Bandwidth problems.
- Stoppage.
- Internet Connectivity.
- Shortages of support.

**Q 3:**

**Part: b.**

### **Collaborative meeting in cloud:**

It can be made by using the software introduced on cloud. The administrations cannot provision a rate effective virtual meeting so as a replacement for of virtual meeting they used face to face meetings.

#### **1. Features of Collaborative Meeting:**

1. Streaming video to allow communicating face to face.
  - Messenger.
  - Zoom Meeting app.
  - WhatsApp
  - Google class room.
  - Instagram.
  - Snapchat.
  - LinkedIn.
  - Imo.
2. Used whiteboard or multimedia to control the presentation.
3. Share Application
4. Meeting recoding.