Mid Semester Assignment (Spring - 2020)
Cloud Computing

Name:	
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Instructor: M Omer Rauf

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: (10)

a. Explain essential characteristics of cloud computing.

Ans: Following are the essential characteristics of cloud computing:

0n-demand self-service:

A consumer by his/her self can plan computing capabilities, like server time and network storage. It provide service without the interaction of any human.

Broad network access:

Capabilities are easily available on the network and can be accessed through standard mechanisms.

Resource pooling:

It is used to describe the situation in which the providers gives clients, customers etc with provisional and scalable services.

Rapid elasticity:

It is the ability to provide scalable services to the customer, clients etc.

Measured service:

In this the cloud provider check the plan of services for various reasons which include billing, effective use of resources etc.

b. Explain in detail the key properties of cloud computing.

Ans: The detail the key properties of cloud computing are:

Cloud computing is User Centric:

Once as a user are connected to the cloud or server to store their data in a cloud. The data can be of any document, file etc. The user have fully authority to access the data any time they want from the server.

Cloud computing is Task Centric:

In this we don't focus that how the application will perform or what will it for us but the main reason is that what are the requirements of ours and how will it provide the essential requirements.

Cloud computing is Powerful:

Cloud computing servers or super computer are more powerful than the single desktop PC. The reason is that there are thousands or hundreds of users are connected it the same time and they are accessing the server.

Cloud computing is Accessible:

Once it data are Uploaded and stored in a server the organization cannot store the user data in a single server. They spread and store the user data on different server which are install on different location.

Cloud computing is Intelligent:

As we know that data is distributed on every server and on different location. Now if the user want to access their specific data so different data method will apply which will help them to get their data so they will do it with proper and intelligent way.

Question No. 2: (10)

a. Explain in detail different service models of cloud computing.

Ans: The detail different service models of cloud computing are:

Software as a Service (SaaS):

The SaaS model allows your business to quickly access cloud-based web applications without committing to installing new infrastructure. The applications run on the vendor's cloud, which they, of course, control and maintain. The applications are available for use with a paid licensed subscription, or for free with limited access. SaaS does not require any installations or downloads in your existing infrastructure, which in turn eliminates the need to install, maintain, and update applications on each of your computers.

Platform as a Service (PaaS)

With this model, a third-party vendor provides your business with a platform upon which your business can develop and run applications.

Because the vendor is hosting the cloud infrastructure which supports the platform, PaaS eliminates your need to install in-house hardware or software. Your business would not manage or control the underlying cloud infrastructure, but you would maintain control over the deployed applications (unlike with SaaS).

Infrastructure as a Service (IaaS)

IaaS, as the most flexible of the cloud models, allows your business to have complete, scalable control over the management and customization of your infrastructure.

In the IaaS model, the cloud provider hosts your infrastructure components that would traditionally be present in an on-site data center (such as servers, storage and networking hardware). Your business, however, would maintain control over operating systems, storage, deployed applications, and possibly limited control of select networking components (e.g. host firewalls).

b. Explain in detail different deployment models of cloud computing.
Ans: The detail different deployment models of cloud computing are:

Public Cloud: The cloud which allows the system and services to be easily accessible to the general public is called public cloud.
E-mail is the example.

Private Cloud: The Cloud which allows the system and services to be accessible within the organization is called private cloud.

Hybrid Cloud: The hybrid cloud is the combination of public and private cloud. It shared the work between these two clouds.

Community Cloud: The cloud which allows the system and services which can be easily accessed by the group of people.

Question No. 3: (10)

a. Explain in detail roles and boundaries in cloud.
Ans: The detail roles and boundaries in cloud are:

Cloud Provider: Cloud providers are companies that offer network services, infrastructure, or business applications in the cloud. For example, you might go to a cloud provider, such as Rackspace, who started as a web hosting company and buy either PAAS or IAAS services.

Cloud Consumer: A cloud consumer is an organization that has a formal contract or arrangement with a cloud provider to use IT resources made available by the cloud provider. Specifically, the cloud consumer uses a cloud service consumer to access a cloud.

Cloud Service Owner: The person or organization that legally owns a cloud service is called a cloud service owner. The cloud service owner can be the cloud consumer, or the cloud provider that owns the cloud within which the cloud service resides.

Organizational Boundary: An organizational boundary represents the physical perimeter that surrounds a set of IT resources that are owned and governed by an organization.

Cloud Resource Administrator: A Cloud Resource Administrator is responsible for administering a cloud service and other types of cloud-based IT resources.

b. Explain in detail cloud risk and challenges.
Ans: The detail cloud risk and challenges are:

Cloud Migration: Cloud migration is the process of moving data, applications or other business elements to a cloud computing environment. A cloud migration could also move data and applications from one cloud platform or provider to another.

Incompatibility: Sometime there are problems of software incompatibility. As some applications, tools, and software connect particularly to a personal computer.

Data Security: Protecting data in the cloud can be similar to protecting data within a traditional data center. Authentication and identity, access control, encryption, secure deletion, integrity checking, and data masking are all data protection methods that have applicability in cloud computing.

Downtime: Cloud downtime can be caused by a number of different factors: Loss of power. Network connectivity issues. A data center going offline for maintenance can also be the reason.

Lack of Expertise: Lack of the necessary resources and expertise is one of the biggest challenges in cloud computing in 2017. This is attributed to several factors which include lack of training, multiple and different cloud vendors and the introduction of hybrid clouds. Today, it's still hard to find training for cloud expertise.