

Chapter 7

Recent Trends in Technology

Q. What is cloud computing? Write its advantages and disadvantages.

→ Cloud computing is the network of large groups of servers that provides storage and application services to organizations, organizations, institutions, offices and people. With cloud computing, a user can store files, access it from any location and use applications provided by the cloud computing. Google cloud, Amazon web services, Yeti cloud are some cloud computing providers.

Advantages of cloud computing

- a) Users can access files from any location where there is internet connection.
- b) It helps to reduce the expenses of companies.
- c) It helps to store user's files and folders permanently.
- d) It provides storage, hardware, servers, and networking components.

Disadvantages of cloud computing

- a) There must be an internet connection to use cloud computing.

- b) There may be data security problems.
- c) Users have to trust the cloud computing providers for maintaining their data.
- d) Users can use only those applications that are hosted by the cloud providers.

2. Define cloud computing services.

→ The service model defines the services provided through the cloud. Some of the service models of cloud computing are:

1. IaaS (Infrastructure as a service)

In this service, computing infrastructural components like server hardware, storage, bandwidth, and other fundamental computing resources are provided through the cloud.

2. SaaS (Software as a service)

This service includes complete software on the cloud. Users can access software hosted on the cloud without installing it on the user's own computer.

3. PaaS (Platform as a service)

It allows the user to rent virtualized servers and associated services used to run existing

applications, or to design, develop, test, deploy and host applications. It provides clients with access to the basic operating software and optional services to develop and use software applications without the need to buy and manage the underlying computing infrastructure.

3. What is Artificial Intelligence (AI)? Explain its application.

→ AI is the ability of computer to see the surrounding, understanding natural language and make decision and think like human. The application areas of AI are as follows:

a. AI in recommendation system

AI is used to generate recommendation lists based on data provided by the user. The Google search engine is one of the most popular applications of AI.

b. AI in virtual personal assistant / speech recognition

Echo, Siri, Cortana, etc are some popular virtual personal assistant that uses AI. They help in finding useful information when we instruct them using our voice.

c. AI in healthcare

AI is used in healthcare. The AI helps to make better and faster diagnoses than humans. All the surgery done with the help of AI are more accurate than humans.

d. AI in egame

AI is used in egames like chess, call of duty, pubg, poker, FIFA, etc. where machine can think of a large number of possible strategies based on knowledge.

e. AI in automobile

AI in automobiles makes the automobile self-driving. Tesla's electronic cars use a variety of AI, including self-driving capacities.

f. AI in industries

Big manufacturing companies use AI in their production units. It controls the production and maintains the quality of products.

4. What is e-commerce? Describe its types.

→ electronic commerce (e-commerce) is an electronic service that provides buying and selling products or services on the Internet. It is also known as internet commerce.

There are basically three types of e-commerce business models. They are:

1. Business - to - Business (B2B)

B2B is related to the transactions of products between companies. In B2B, companies sell their goods and services online to other companies.

2. Business - to - consumer (B2C)

The B2C e-commerce model is related to the transactions of products and services between companies and consumers (i.e. consumer). In B2C, a company sells its products directly to a customer.

3. consumer - to consumer (C2C)

The C2C e-commerce model is related to the transactions of products and services between customers. In C2C, a third party provides the online platform for customers to sell or purchase their products or services. Some popular C2C e-commerce sites are ebay.com, hamro bazar.

com and sastodeal.com.

5. What is e-governance? Explain its types.

→ The part of electronic government that provides information and services to citizen and organizations through (ICT) is known as e-governance.

There are four types of e-governance.

i. eGovernment to citizen (eG2C)

The government to citizen refers to the basic government services that are accessed by the general public. Some services provided to citizens are license renewal, ordering birth/death/marriage certificates, etc.

ii. eGovernment to Business (eG2B)

eG2B is the online non-commercial interaction between government and the commercial business sector. Some services provided to business sector are application forms, registering business, paying taxes, etc.

iii. eGovernment to eGovernment (eG2G)

eGovernment to ^{government} employee is the online non-commercial interaction between the government organizations, departments, and authorities.

iv. Government to Employee (G2E)

Government to Employee is the online non-commercial interaction between the government and employees. Some services provided to employees are trainings, paying taxes, etc.

6. What is IOT? Writes its advantages and disadvantages.

→ Internet of things (IOT) is the network of physical devices, vehicles, home appliances, and other items embedded with electronics, software, sensors, actuators, and connectivity, which enables these things to connect, collect and exchange data over a network.

Advantages

- 1. It helps to improve the quality of a business's services.
- 2. It supports to improve decision-making and increases the value of the business.
- 3. It has the ability to access information from anywhere at any time on any device.
- 4. It makes day to day life easier.
- 5. Transferring data packets over a connected networks save time, effort and money.

Disadvantages

- 1. There is a risk of illegal access to data as it flows on the internet.
- 2. IOT is very costly to implement.
- 3. IOT systems are very complex; any failure can affect everyone.
- 4. It makes people lazy.
- 5. If there's a bug in the system, every connected device will likely become corrupted.

Imp 7. What is big data? Explain the characteristics of big data.

OR

What is big data? Explain the six vs of big data.

→ Big data is a collection of huge amounts of data that keeps on growing exponentially with time.

1. Variety: It refers to the variety of data gathered from multiple sources. The variety can be structured, unstructured, or semi-structured.

2. Velocity: It refers to the speed at which data is being created in real-time. It also comprises the rate of change, linking of incoming data sets at variety speeds.

3. **volume**: Big data indicates huge 'volumes' of data that are being generated daily from various sources like social media platforms, business processes, machines, networks, human interactions etc.
4. **veracity**: It refers to the reliability or trustworthiness of the data.) Due to the large volume of data, we can have uncertainty about the validity the accurateness of data.
5. **value**: It refers to the worth of business value of the collected data.
6. **variability**: It refers to the inconsistency of the big data and how the big data can be used and formatted.