E-Commerce Technologies

UNIT-1	**E-commerce Technologies Introduction**
Introduction to e-commerce, technical components and functions of e-commerce, Advantages and disadvantages of e-commerce, Scope and applications of e-commerce, E-commerce and e-business, Evolution of internet, Domain names and internet organization	
UNIT-2	**Networks & Digital promotions**
Types of networks, Role of internet in B2B application and building own website, Web promotion, Target email, Banner exchange and Shopping Bots, Secure transaction over internet, Privacy issues	
UNIT-3	**Security**
Computer crime, Threats and attacks on computer system, Software packages for privacy, Hacking and computer virus, Security algorithms, Authorization and authentication, digital signature	
UNIT-4	**Electronic Data Interchange**
Firewall, Basic concepts of EDI, Applications of EDI, EDI model and Disadvantages of EDI model, Introduction to electronic payment systems, Payment types	
UNIT-5	**E-commerce strategies**
Planning e-commerce initiates, linking objectives to business strategies, managing costs, Strategies for developing e-commerce websites, Pros and cons of online shopping, Case study- cons of online shopping, E-cycle of internet marketing, Internet marketing technique, Personalization of e-commerce	

Unit -1 E-commerce Technologies Introduction

1.1. Introduction to E-commerce:

Introduction:

E-commerce basically stands for Electronic commerce. The term electronic commerce or e-commerce refers to any sort of business transaction that involves the transfer of information through the internet. using the Internet and the web for business transactions and/or commercial transactions, which typically involve the exchange of value (for example money) across organizational or individual boundaries in return for products and services.

E-commerce occurs daily when sellers and buyers use the internet to conduct business transactions. Technology makes it possible for anyone to buy or sell practically anything online.

E-Business

E-business refers to that when you bring all your business activities on e-Format. E-business applications turn into e-commerce precisely, when an exchange of value occurs. Digitally enabled transactions include all transactions mediated by digital technology and platform; that is, transactions that occur over the Internet and the web. Electronic commerce or e-commerce refers to any sort of business transaction that involves the transfer of information through the internet. By definition, it covers a variety of business activities that use the internet as a platform for either information exchange or monetary transaction or both at times.

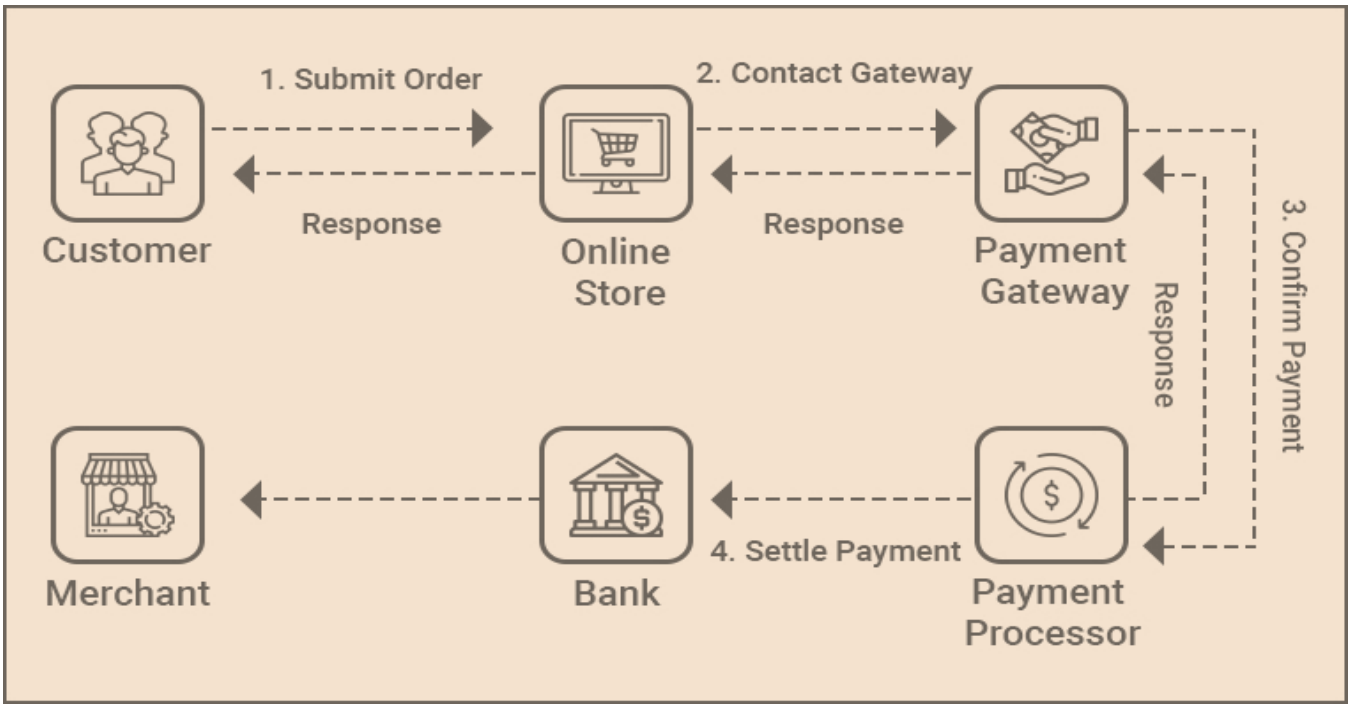
For example, the number of consumer brands retail sites
like **Amazon.com** and **Flipkart.com** normally provides information about the products and also allows monetary transactions to happen over the internet.

On the contrary, there are the auction sites like **Quickr.COM** and **eBay.COM** where the information about certain listed products and services are provided but the monetary transactions normally happen physically.

Apart from these two categories of e-commerce sites, there are some sites that enable businesses to exchange trading goods and also services between two or more companies. All of these forms of internet-based business platforms are known as e-commerce.

How does e-commerce work?

E-commerce is powered by the internet. Customers access an online store to browse through and place orders for products or services via their own devices.



As the order is placed, the customer's web browser will communicate back and forth with the server hosting the e-commerce website. Data pertaining to the order will be relayed to a central computer known as the order manager. It will then be forwarded to databases that manage inventory levels; a merchant system that manages payment information, using applications such as PayPal; and a bank computer. Finally, it will circle back to the order manager. This is to make sure that store inventory and customer funds are sufficient for the order to be processed.

After the order is validated, the order manager will notify the store's web server. It will display a message notifying the customer that their order has been successfully processed. The order manager will then send order data to the warehouse or fulfilment department, letting it know the product or service can be dispatched to the customer. At this point tangible or digital products may be shipped to a customer, or access to a service may be granted.

Platforms that host e-commerce transactions include online marketplaces that sellers sign up for, such as Amazon; software as a service (SaaS) tools that allow customers to "rent" online store infrastructures; or open source tools that companies manage using their in-house developers.

Different types of E-Commerce

The major different types of E-Commerce are:

- Business-to-Business (B2B)
- Business-to-Consumer (B2C)
- Consumer-to-Business (C2B)
- Consumer-to-Consumer (C2C)
- Mobile Commerce (M-Commerce)

1.Business-to-Business (B2B)

Business to Business or B2B refers to E-Commerce activities between businesses. On the B2B business model the product buys, in bulk and sells to the other business.

For example **Alibaba.com**

The majority of the audience on Alibaba.com is working on the B2B model, but also some B2C audience exists.

In E-Commerce B2B, transactions are usually carried out through Electronic Data Interchange or EDI. EDI is an automated format of exchanging information between businesses over private networks. EDI is composed of standards that enable businesses' computers to conduct transactions with each other, without human intervention. For Example- Manufacturers and wholesalers are B2B companies**.**

2.Business-to-Consumer (B2C)

When a third-party seller sells to the consumers that means it is B2C. There is no limit to the quantity of the product. You can buy one unit. If you buy one unit it means the seller is selling their product to consumers. On **Amazon,** the majority of the audience follows the B2C Format. Business to Customer or B2C refers to E-Commerce activities that are focused on consumers rather than on businesses. For instance, a book retailer would be a B2C company such as Amazon.com.

3.Consumer-to-Business (C2B):

Customer to Business or C2B refers to E-Commerce activities, which use reverse pricing models where the customer determines the price of the product or services. **Up work** is an example of C2B where You can individually list your services. Anyone can buy the listed services. When a consumer is selling to a Business it is called C2B Business Model.

For example – teleworkers and online auctions are C2B processes.

4.Consumer-to-Consumer (C2C):

When a consumer/customer is selling their product to consumer/customer that is called C2C Business Model. Customer to Customer or C2C refers to E-Commerce activities, which use an auction-style model. Customers are also the business and C2C enables customers to directly deal with each other.

An example of this is **the peer auction giant, E Bay**, **OLX.**

5.Mobile e-commerce:

(m-commerce) refers to online sales transactions using mobile devices, such as smartphones and tablets. It includes mobile shopping, banking and payments. Mobile chatbots facilitate m-commerce, letting consumers complete transactions via voice or text conversations.

1.2.1 Technical components OF Ecommerce :

1) ISDN (Integrated Services Digital Network)
2) Broadband
3) ADSL
4) Cable Modems
5) Metropolitan Area Ethernet Services
6) Leased Lines
7) wireless networking
8) Wireless LAN
9) Bluetooth

1.2.2 Function of E Commerce

1.3 Advantages and disadvantages of e-commerce:

Benefits of e-commerce include its around-the-clock availability, the speed of access, the wide availability of goods and services, easy accessibility and international reach.

- **Availability.** Aside from outages and scheduled maintenance, e-commerce sites are available 24/7, enabling visitors to browse and shop at any time. Brick-and-mortar businesses tend to open for a fixed number of hours and may even close entirely on certain days.
- **Speed of access.** While shoppers in a physical store can be slowed by crowds, e-commerce sites run quickly, which is determined by compute and bandwidth considerations on both the consumer device and the e-commerce site. Product and shopping cart pages' load in a few seconds or less. An e-commerce transaction can comprise a few clicks and take less than five minutes.
- **Wide availability.** Amazon's first slogan was "Earth's Biggest Bookstore." It could make this claim because it was an e-commerce site and not a physical store that had to stock each book on its shelves. E-commerce enables brands to make a wide array of products available, which are then shipped from a warehouse or various warehouses after a purchase is made. Customers will likely have more success finding what they want.
- **Easy accessibility.** Customers shopping a physical store may have difficulty locating a particular product. Website visitors can browse product category pages in real time and use the site's search feature to find the product immediately.
- **International reach.** Brick-and-mortar businesses sell to customers who physically visit their stores. With e-commerce, businesses can sell to anyone who can access the web. E-commerce has the potential to extend a business's customer base.
- **Lower cost.** Pure play e-commerce businesses avoid the costs of running physical stores, such as rent, inventory and cashiers. They may incur shipping and warehouse costs, however.
- **Personalization and product recommendations.** E-commerce sites can track a visitor's browse, search and purchase history. They can use this data to present personalized product recommendations and obtain insights about target markets. Examples include the sections of Amazon product pages labelled "Frequently bought together" and "Customers who viewed this item also viewed."

The perceived **disadvantages** of e-commerce include sometimes limited customer service, consumers not being able to see or touch a product prior to purchase and the wait time for product shipping.

- **Limited customer service.** If customers have a question or issue in a physical store, they can see a clerk, cashier or store manager for help. In an e-commerce store, customer service can be limited: The site may only provide support during certain hours, and its online service options may be difficult to navigate or not answer a specific question.
- **Limited product experience.** Viewing images on a webpage can provide a good sense about a product, but it's different from experiencing the product directly, such as playing a guitar, assessing the picture quality of a television or trying on a shirt or dress. E-commerce consumers can end up buying products that differ from their

expectations and have to be returned. In some cases, the customer must pay to ship a returned item back to the retailer. Augmented reality technology is expected to improve customers' ability to examine and test e-commerce products.

- **Wait time.** In a store, customers pay for a product and go home with it. With e-commerce, customers must wait for the product to be shipped to them. Although shipping windows are decreasing as next-day and even same-day delivery becomes common, it's not instantaneous.
- **Security.** Skilled hackers can create authentic-looking websites that claim to sell well-known products. Instead, the site sends customers fake or imitation versions of those products -- or simply steals credit card information. Legitimate e-commerce sites also carry risk, especially when customers store their credit card information with the retailer to make future purchases easier. If the retailer's site is hacked, threat actors may steal that credit card information. A data breach can also lead to a damaged retailer reputation.

1.4 Scope and applications of e-commerce

There is a high scope of e-commerce in each aspect of business, at present it is in the embryonic stage but in future ecommerce would be the part of day to day activity of business firms.

Following are the marketing areas where we seek **scope** of e-commerce:

(i) Marketing, sales and sales promotion.

(ii) Pre-sales, subcontracts, supply.

(iii) Financing and insurance.

(iv) Commercial transactions – ordering, delivery, payment.

(v) Product service and maintenance.

(vi) Co-operative product development.

(vii) Distributed cooperative working.

(viii) Use of public and private services.

(ix) Business-to-administrations

(x) Transport and logistics.

(xi) Public procurement.

(xii) Automatic trading of digital goods like games, learning material, songs and music etc.

(xiii) Accounting and financial management.

(xiv) Legal advice

E-commerce Applications

We briefly discussed the two perspectives on e-commerce applications in the preceding section. Let us now dig into them in greater depth.

1. Retail

E-retailing, often known as online retailing, is the sale of products and services by businesses to customers via online stores. This is done through the use of tools such as virtual shopping carts and e-catalogs. There are several e-commerce applications in this industry.

2. Accounting

Finance and e-commerce are more intertwined than ever before. Banks and stock exchanges make extensive use of e-commerce in their operations. Balance checks, bill payments, money transfers, and more services are available through online banking. Online stock trading allows users to trade stocks online by providing information about equities such as performance reports, analysis, charts, and so on via websites.

3. Production

In the manufacturing industry, e-commerce serves as a platform for firms to conduct electronic transactions. Groups of firms can carry out their activities more smoothly by combining purchasing and selling, exchanging market conditions, inventory check information, etc.

4. Trade

Applying e-commerce to trade elevates it to a higher level, allowing individuals to participate without regard for geographical borders. This encourages more participation, more bargaining and contributes to the success of the trade.

5. Advertising

Development and commercialization strategies like pricing, product characterization, and customer relationship can be boosted by utilizing e-commerce. This will give consumers a more enriched and personalized purchasing experience. Digital marketing tactics have grown in importance as a means of promoting enterprises.

6. Digital Shopping

People's buying habits have shifted dramatically in the previous several years. "Go online" has become a success mantra for all enterprises. Online shopping is easy, pleasant, and, in most cases, inexpensive. The success of online shopping applications like Flipkart and Amazon demonstrates this.

7. Web and mobile applications

Mobile commerce or m-commerce application is a subset of retail e-commerce. Mobile or web application development has become a must-have for companies looking to showcase their skills. Purchases are made by the consumer using mobile or web applications that are optimized for the merchant. These programs also provide payment security by utilizing secure e-payment mechanisms.

8. Digital Reservations

Travel and tourism is a flourishing sector today, and online booking is a developing e-commerce application. Online booking allows customers to buy travel necessities such as train/flight tickets, book hotel rooms, get tourism packages, transportation services, and so on. It makes people's trips comfortable and easy because everything can be set at the tip of their fingertips.

9. Digital Media

E-books and digital periodicals are gradually displacing traditional printed publications. It has numerous advantages, including portability, lightweight, accessibility from anywhere, and so on. They are also environmentally friendly because they assist in reducing paper use and saving forests. Because of these factors, internet publication, often known as e-publishing, has grown in popularity.

10. Internet Banking

E-Banking, often known as online banking, is an e-commerce program that has streamlined people's time-consuming and complex banking operations. It allows bank customers to do transactions online without having to wait in lengthy lines at banks. To provide virtual banking services to their consumers, most of the banks now have their web applications.

1.5 E-commerce and e-business

1. E-Commerce : E-Commerce refers to the performing online commercial activities, transactions over the internet. It includes activities like buying and selling products, making monetary transactions etc over the internet. The Internet is used for E-commerce. Websites and applications (apps) are required for e-commerce. it is mainly connected with the end process of flow means connected with the end customer.
Examples of E-Commerce are online retailers like amazon, flipkart, Myntra, paytm mall, seller of digital goods like ebooks, online service etc.

Activities of E-Commerce are :

- Buying and selling product online
- Online ticketing
- Online Payment
- Paying different taxes
- Online accounting software
- Online customer support

2. E-Business: E-Business refers to performing all type of business activities through the internet. It includes activities like procurement of raw materials/goods, customer education, supply activities buying and selling products, making monetary transactions etc over the internet. Internets, intranet, extranet are used in e-business. Websites, apps, ERP, CRM etc are required for e-business.

Examples of E-Business are e-commerce companies and its various internal business activities, auction site, classified site, software and hardware developer site etc.

Activities of E-Business are:

- Online store setup
- Customer education
- Buying and selling product
- Monetary business transaction
- Supply Chain Management
- Email marketing

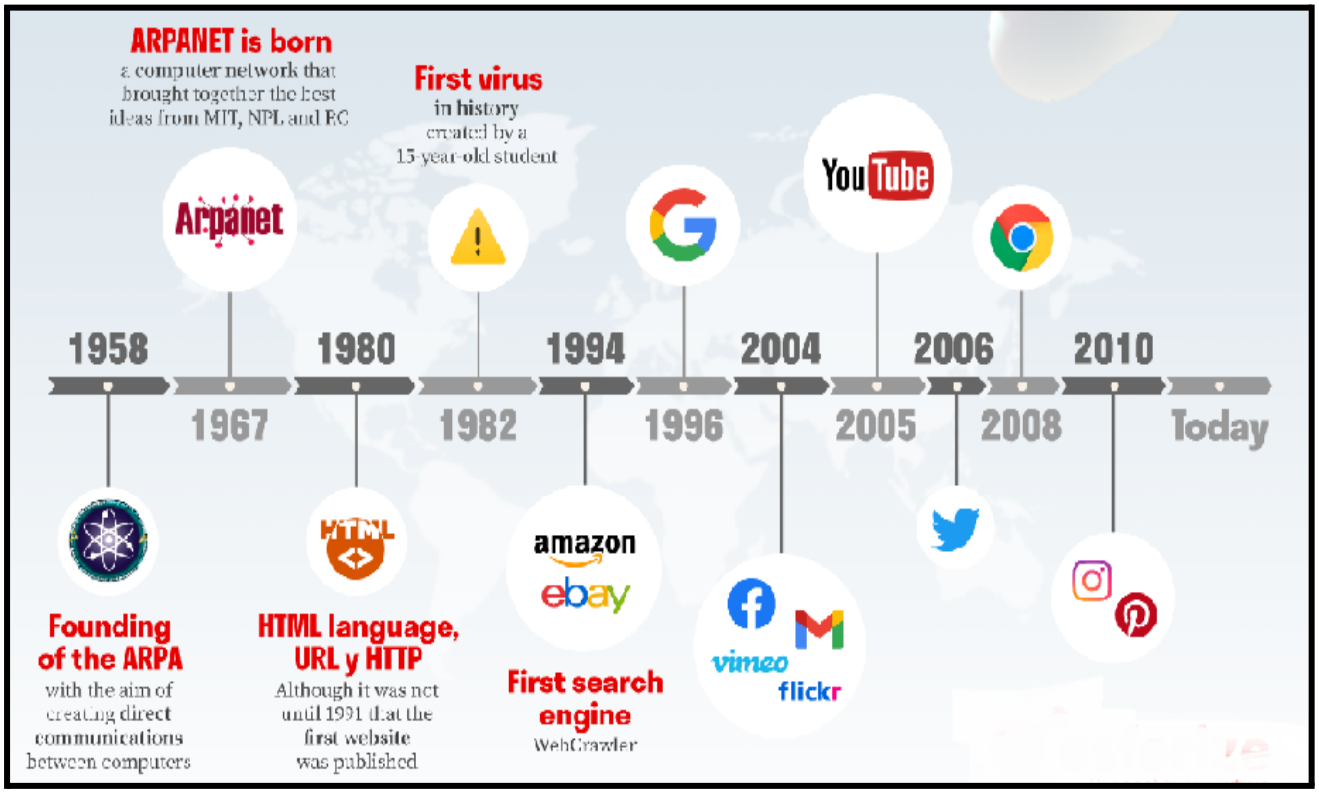
Difference between E-Commerce and E-Business:

S. No.	E-COMMERCE	E-BUSINESS
1	E-Commerce refers to the performing online commercial activities, transactions over the internet.	E-Business refers to performing all types of business activities through the internet.
2	E-Commerce is a narrow concept and it is considered as a subset of E-Business.	E-Business is a broad concept and it is considered as a superset of E-Commerce.
3	Commercial transactions are carried out in e-commerce.	Business transactions are carried out in e-business.
4	In e-commerce transactions are limited.	In e-business transactions are not limited.
5	It includes activities like buying and selling products, making monetary transactions etc over the internet.	It includes activities like procurement of raw materials/goods, customer education, supply activities buying and selling products, making monetary transactions etc over the internet.
6	It usually requires the use of only a website.	It requires the use of multiple websites, CRMs, ERPs that connect different business processes.
7	It involves mandatory use of the internet.	It involves the use of the internet, intranet or extranet.
8	E-commerce is more appropriate in a Business to Customer (B2C) context.	E-business is more appropriate in a Business to Business (B2B) context.

1.6 Evolution of internet

What is the Internet?

The Internet is a short form for an interconnected network. It has become a vital part of our lives, helping us connect with people worldwide. The Internet is made of a large number of independently operated networks. It is fully distributed with no central control. Each independently-operated system is motivated to ensure that there is end-to-end connectivity of every part of the network.



1958 – Founding of the ARPA

In this year, the Advanced Research Projects Agency Network was founded.

This organisation was made up of some 200 scientists and its aim was to create direct communications between computers.

1967 – ARPANET is born

This year saw the first connection between computers at Stanford and UCLA. ARPANET was a computer network that brought together the best ideas from teams at the Massachusetts Institute of Technology (MIT), the National Physics Laboratory (NPL) and the Rand Corporation (RC).

1980 – HTML language, URL and HTTP

Tim Berners-Lee joined the European Organisation for Nuclear Research (CERN) that year as a software engineer. In 1989 he presented a solution to the problems of data loss thanks to a distributed hypertext system.

By 1990, Berners-Lee had developed three technologies: HTML, URLs and the hypertext transfer protocol HTTP.

1982 – First virus

Although there were earlier virus cases, the virus created by Rich Skrenta is considered the first. The 15-year-old student programmed the so-called Elk Cloner for the Apple II, the first computer virus to have a real spread.

Today, Rich is a Silicon Valley entrepreneur who created the web search engine Blekko.

1994 – The first search engine and the first online shops

The first full-text search engine was WebCrawler. Unlike its predecessors, it allowed users to perform a keyword search on any

website. In addition, Yahoo!, Excite, Infoseek, Inktomi, Northern Light and Altavista were also launched that year.
Although the first online sales are said to have taken place on the Net Market service, in reality it was not until 1994 that the first online shops, including Amazon and eBay, were launched.

1996 – Google

Larry Page and Sergey Brin launched today's quintessential search engine: Google. The initial project was called BackRub, as that was the name of the technology they used.
Google based the operation of its search engine on the relevance of the contents of each web page for the users themselves. In other words, it prioritised those results that users considered most relevant to a specific topic. To do so, it patented its famous PageRank, a series of algorithms that assess the relevance of a website by assigning it a score from 0 to 10.

2004 – Social networks

The 21st century began with the creation of Wikipedia, Safari, MySpace, LinkedIn, Skype and WordPress. However, it was not until 2004 that Facebook, Vimeo, Flickr and Gmail appeared.
2005 – YouTube
2006 – Twitter
2008 – Google Chrome
2010 – Instagram y Pinterest
2011 – Snapchat
2016 – TikTok

Present

In Spain alone, there are currently 40.7 million social network users, equivalent to 87.1% of the Spanish population. In addition, 44 million use the Internet daily for an average of 6 hours.

1.7 Domain names and internet organization:

Domain may refer to any of the following:

1. When referring to an Internet address or name, a domain or domain name is the location of a website. For example, the domain name "google.com" points to the IP address "216.58.216.164". Generally, it's easier to remember a name rather than a long string of numbers. A domain name contains a maximum of sixty three characters, with one character minimum, and is entered after the protocol in the URL, as shown in the following example.

What is a top and second level domain?

In our example of the "google.com" domain name, there are two parts of the domain name. First is "google," which is called the SLD (second-level domain) and ".com," which is the TLD (top-level domain). See our top-level domain definition for further information on top level domains.

What was the first domain?

1. The first Internet domain name "symbolics.com" was registered by Symbolics, a Massachusetts computer company on March 15, 1985.When deciding on a domain name, its a good idea to keep it simple, something that is easy to remember. Additional promoting tips for websites are in our guide to promoting your content on the web. To register or look up a domain name, we recommend visiting GoDaddy or Network solutions; both companies are domain name registrars.
2. When referring to a computer network, a **domain** is a group of resources assigned to a specific group of individuals. It is used to divide global areas or departments of a corporation. A domain may need to be specified when mapping a network computer or drive.
3. When DNS was not in existence, one had to download a Host file containing host names and their corresponding IP address. But with the increase in the number of hosts on the internet, the size of the host file also increased. This resulted in increased traffic on downloading this file. To solve this problem the DNS system was introduced.

Domain Name System helps to resolve the host name to an address. It uses a hierarchical naming scheme and distributed database of IP addresses and associated names.

Domain Names:

Domain Name is a symbolic string associated with an IP address. There are several domain names available; some of them are generic such as com, edu, gov, net etc, while some country level domain names such as au, in, za, us etc.

The following table shows the Generic Top-Level Domain names:

Domain Name	Meaning
Com	Commercial business
Edu	Education
Gov	U.S. government agency
Int	International entity
Mil	U.S. military
Net	Networking organization
Org	Non profit organization

The following table shows the Country top-level domain names:

Domain Name	Meaning
au	Australia
in	India
cl	Chile
fr	France
us	United States
za	South Africa
uk	United Kingdom
jp	Japan
es	Spain
de	Germany
ca	Canada
ee	Estonia
hk	Hong Kong