



# **VIVEKANANDA COLLEGE, TIRUVEDAKAM WEST**

*College with Potential for Excellence*

(Residential & Autonomous -A Gurukula Institute of Life Training)

(Affiliated to Madurai Kamaraj University)

(Managed by Sri Ramakrishna Tapovanam, Tirupparaiturai)

Re-accredited with 'A' Grade (CGPA 3.59 out of 4.00) by NAAC

## **E-COMMERCE** **(Study Material)**



WISSE, WILDE AND WOP-PUT TILL THE GOAL IS REACHED

## CHAPTER-1

### INTRODUCTION TO INTERNET AND WWW

#### INTRODUCTION:

We are living in the computer age. Computer is the most appropriate representative of man's intelligence and wisdom. Computers are not to replace the human intelligence and memory but assist humanity in its task of collecting, memorizing and analyzing the information. It is used to perform millions of computations in just a few seconds. It is used to store large volumes of information for future use. Thus the desirable characteristics of computers are their speed, storage capacity, consistency and accuracy.

Computer revolution has found its way into, almost every aspect of human life and living. Surmounting all boundaries of time, place and action, the mind-boggling and ever changing world of internet has added a new dimension to human existence. It has expedited the pace of evolution and revolutionized our civilization, giving license to anybody to publish news and information at an amazingly low cost for anyone, anytime, anywhere in the world.

#### WHAT IS NETWORK?

A system comprising several terminals with one or more central processing units (CPU) and allowing several users at once to draw on the same date or alternatively to use a different program at each terminal. Network may be Local Area Network (LAN), Metropolitan Area Network (MAN) and Wide Area Network (WAN).

**LAN:** A private network within a range of 10 kilometers owned and collected by a single organization (e.g.). Computers in various locations departments of a college can be connected to the file server in the computer centre of that college.

**MAN:** A public or private network to connect various locations including suburbs in a metropolitan city using LAN technology. (eg). Connection the computers of all textile companies in a city, Cable Television Network etc.

**WAN:** A public network connecting different cities and towns mostly through telephone links or microwave links through a satellite.

**VWAN:** A public network connecting different continents and countries through a satellite.

#### WHAT IS INTERNET?

The term Internet stands for inter-network systems. It is a worldwide network of networks. Internet is a global system of thousands of inter connected computer networks. It is otherwise called as inter linking of LAN, MAN, WAN and VWAN.

## **ORIGIN OF INTERNET:**

In 1969 the Department of Defense of United States of America started a network called ARPANET (Advanced Research Projects Administration Network). It was the pioneer for the development of INTERNET.

In mid-1980's another federal agency, the National Science Foundation, created a new, high capacity network called NSFnet, which was more capable than ARPANET.

In 1980's many private networks were also build to cater to the activities, which were not allowed on NFSnet.

In 1990's the inter-networking of ARPANET, NFSnet and other private networks resulted into Internet.

Nowadays, various departments are using this facility through simplified technology.

## **USES OF INTERNET:**

- a) It provides the means to exchange data among computers and to make programs and data available to the people.
- b) It permits the sharing resources of the machines.
- c) It allows a flexible working environment.
- d) It saves money.
- e) It is used as a communication medium.
- f) Businesses use internet to carry out electronic commerce.
- g) Internet is used for voice and video conferencing and other forms of communication.
- h) E-mail on internet has greatly speeded up the communication among companies and among individuals.

## **FUNCTIONALITY OF INTERNET (OR) INTERNET ADDRESSING:**

The internet has more than a million computers attached to it from which arises the need of a proper addressing system for communicating. Each computer on the network is called host, and has a name and a number that identifies it. There are types of addressing.

### **1. Domain Naming system (or) Letter addressing system:**

A domain name system is a way to identify and locate computers or servers connected to the Internet. It is otherwise called as Character based addressing system (or) Letter addressing system. No two organisations can have the same domain name. A domain name always contains two or more components separated by periods called "dots". The format of domain name is as follows.

User id, computer code, name of the network service provider, type of organisation, country code

#### **Example:**

[Venkat@pn2.vsnl.net.in](mailto:Venkat@pn2.vsnl.net.in)

Venkat----- User id

@----- @ sign separates user id from address  
pn2----- Name of the computer  
vsnl----- Name of the network service provider  
net----- Type of organisation  
in----- Country code

In domain name, the following codes refer to the types of organisation.

.com ----- commercial site	.edu----- Educational site
.net ----- Network site	.mil----- Military site
.org ----- Non-profit organizational site	.gov----- Government site

In domain name, the following codes refer to name of the country.

.au ----- Australia	.at ----- Austria	.in ----- India
.be ----- Belgium	.ca ----- Canada	.us ----- united states
.de ----- Germany	.fr ----- France	.uk ----- united kingdom

## 2. IP Addressing System (or) Number addressing system:

The number based addressing system by which a particular host computer is identified is known as IP addressing system or number addressing system no two host computers can have the same IP number. An IP address consists of four sections separated by periods. The first three sections identify the name of the network service provider. The last section identifies a host computer. Each section contains a number ranging from 0 to 255.

Example, 202.54.1.6

:..... : :.....id number to a host computer

:..... id number to a network service provider

## 3. E-Mail Addressing:

Electronic mail allows information to be sent between computers and people on the internet. An e-mail message can be sent to one or more e-mail addresses. An e-mail address identifies a person and the computer for purposes of exchanging electronic mail messages. an e-mail address may be either in the form of domain naming system or in the form of IP address is read from left to right. The basic structure of an e-mail address is

Username @host. subdomain. Second –level –domain. First-level-domain

Example: [venkat@pn2.vsn1.net.in](mailto:venkat@pn2.vsn1.net.in)

#### **4. Uniform Resource Locator(URL)**

It is a special or a standardised address format to identify a particular internet resource; for example, a web page, gopher server, library catalog. An image, or a text file. A URL is read from left to right. The basic structure of URL is

Protocol ://server-name .domain –name. top-level –domain:port/directory/filename

Example : <http://www.microsoft.com>

#### **HOW DOES INTERNET WORK?**

The internet is a network of many networks, which are connected through any one of the following ways to the internet backbone.

A Bridge is a device that connects two local area networks.

A router is a device that connects two or more IP networks.

A gateway is a device that connects two or more dissimilar networks.

In internet, file /message can be shared between/among computers through a standard protocol. Protocol is a set of rules that governs the communication of information between two or more computer.

With the help of TCP/IP ((Transmission Control Protocol (TCP) /Internet Protocol (IP)), any computer in the networking. when some message or file is to be sent to the destination computer, following things happen:

- a) At the source computer, the file/message to be sent to another computer is firstly divided into serially numbered packets through Transmission Control Protocol (TCP).
- b) The packets are sent to the address of destination computer through IP (internet protocol).
- c) The destination or recipient computer receives the packets and reassembles them to obtain the original message. This is done by TCP.

#### **REQUIREMENTS FOR AN INTERNET CONNECTION:**

To have an internet connection the following are essential:

##### **Hardware requirements:**

1. A Pentium processor with Win NT 4.0.32 to 64 MB RAMS, 150 MB hard disk memory space and CD ROM drive.
2. A telephone connection.
3. A MODEM (modulator and demodulator).

A modem is a device that allows you to communicate with another computer through telephone lines. It converts digital signals from your computer to analog signals that can pass through telephone lines and convert s them back into digital signals at the receiving end.

## **Software requirements:**

1. An operating system preferably Windows 95 and above.
2. Communication softwares, browsers (Microsoft internet explorer, net scape navigator etc.), e-mail programs, FTP (file transfer protocol) programs.
3. An internet service provider (ISP).

**Internet service provider (ISP)** is a company which provides access to the internet. Some examples of popular internet service providers AT&T WorldNet, Microsoft network and America online. In India, Videsh Sancher Nigam Limited (VSNL), Mahanagar Telecom Nigam Limited (MTNL), Mantra on-line and Satyan on-line are popular. These are companies that allow you to use their internet connection for cheaper price. When you register, the ISP gives you the following:

User name: a unique name that identifies you.

Password: a secret code that prevents other people from using your account.

e-mail address: a unique address that you can use to send and receive e-mails.

Access telephone numbers: you can use these number to connect to the service provider.

## **ACCESSING INTERNET (OR) INTERNET RETRIEVAL TOOLS (OR) WAYS TO CONNECT INTERNET:**

Internet can be connected through one of the following methods.

- a) Dedicated Access
- b) Dial up Access

### **A) Dedicated Access:**

Dedicated Access of internet is a direct link between your computer and an internet service provider (ISP). ISP is a company which provides access to the internet. Some examples of popular internet service providers are AT&T, Wordnet, Microsoft Network and America online. In india, Videsh Sancher Nigam Limited (VSNL), Mahanagar Telecom Nigam Limited (MTNL), Mantra On-Line and Satyam On-Line are popular.

The dedicated access may be a leaded phone line, ISDN (Integrated Services Digital Network), t-1 line, t-3 line, and DSL (Digital Subscriber Line). This type of access is very fast and available 24 hours a day by very expensive.

Hardware requirements of a dedicated access of internet are a computer, a router and a leased line. It does not require modem.

Software requirements of a dedicated access of internet are browsers (Microsoft internet explorer, Netscape navigator etc.), e-mail programs, FTP (File Transfer Protocol) programs, and at least windows 95 as operating system.

## **B) Dial Up Access:**

A dial up connection is a temporary connection between your computer and an internet service provider (ISP). It requires maintaining an account with an ISP. The account can be either shell or TCP/IP. Shell account allows viewing only text-based information to internet users; it is very low cost but user friendly. TCP/IP account provides text information, graphical information, sounds, moves, www (word wide web). It is costlier than shell account.

Hardware requirements of a dial up access of internet are a computer, a modem and a telephone line.

Software requirements of a dial up access of internet are communication software, browsers (Microsoft internet explorer, nets-cape navigator etc.), e-mail programs, FTP (file transfer protocol) programs, and at least Windows 95 as operating system.

## **FACILITIES ON THE INTERNET (OR) APPLICATIONS OF THE INTERNET:**

The facilities or applications of the internet are grouped in the following two headings namely.,

- I. Getting information through internet protocols**
- II. Sharing communication with other people**

### **I. Getting information through internet protocols:**

The following are the commonly used protocols in internet.

#### **a) Transmission Control Protocol/Internet Protocol (TCP/IP):**

TCP/IP is actually a collection of standard protocols or rules, that governs the way data travel from one machine to another across networks. With the help of TCP/IP, any computer under internet can share information with another computer in the networking. This is the standard protocol for the net.

#### **b) File Transfer Protocol (FTP):**

FTP is a protocol or a set of rules, which enables files to be transferred between computers in the internet. It is part of the TCP/IP protocol suite. FTP works on the client/server principle. Client means that a computer asks information from another computer or server. Server means that a computer accepts the connection initiated by the client and sends back a response.

#### **c) Hypertext Transfer Protocol (HTTP):**

HTTP is a set of rules, or protocols that governs the transfer of hypertext or multimedia between two or more computers. **Hypertext or Multimedia** is a combination of text, audio and video tracks, graphics, sounds, pictures, images and hyperlinks.

HTTP works on the client/server principle. HTTP generally works in combination with www (World Wide Web). The HTTP is responsible for accessing hypertext documents on WWW.

**d) Telnet:**

Telnet is a protocol, or set of rules, that enables one computer to connect to another remote computer. Telnet works on the client/server principle. Telnet allows the user to access Internet resources like library catalogs, databases, other internet tools such as FTP, World Wide Web, etc.

**e) Gopher:**

Gopher is a protocol designed to search, retrieve, and display from remote sites on the internet. Gopher works on the client/server principle.

**f) Wide Area Information Service (WAIS):**

WAIS is a powerful Internet search tool used for searching and retrieving information

from databases scattered across the Net. It works on the client/server principle.

**g) VERNICA:**

Veronica stands for very easy rodent oriented net-wide index to computer archives. It searches the menus of hundreds of gopher of gopher servers. It is very easy to use, as it is menu driven.

**h) ARCHIE:**

Archie is another internet search program that helps users to locate files and directories on anonymous FTP servers anywhere on the internet.

**II. Sharing communication with other people:**

**a) e-mail (electronic mail ):**

Using electronic mail a sender sends his text, pictures ,sounds, programs, or even movies to a receiver on the internet anywhere in the world. Each user on the internet has a unique e-mail address. This e-mail address helps you in identifying a user to whom you wish to send e-mail. In this context, the message of sender will be stored in the receivers computer storage. So the receiver can access or read the senders message at any time. The cost of sending message through e-mail is cheaper than sending message through telephone calls. The other merits are speedy, time saving and waste reduction.

**b) News groups:**

These are discussions in the network news system. The discussion topics are range from recreational activities to scientific research.

**c) Usenet news:**

It allows to know the world news then and there. It also allows to get information about latest innovations and publications.

**d) Word wide web (www):**

It is the latest set of programs, standards and protocols governing the way in which multimedia and hypertext files are created and displayed on the internet. With the help of www, researchers, professionals, traders and persons of respective departments promulgate information about their department.

**e) Chatting:**

Chat is online textual conversation wherein the message typed by the sender is instantly made available to the recipient and vice-versa. The online textual phone is one of the latest facility available in Internet.

**f) Video conferencing:**

A two-way videophone conversation among multiple participants is called Video Conferencing. It is one of the latest facility available in Internet.

**MEANING OF WORLD WIDE WEB (WWW):**

WWW is a set of programs, standards, and protocols that allows the multimedia and hypertext files to be created, displayed and linked on the internet.

**ORIGIN OF WWW:**

The concept of WWW was firstly developed by Tim Berners Lee, a research scientist at the European Particle Laboratory (CERN) in Geneva during 1980's. He developed a programming language called Hypertext Markup Language (HTML) on which web is based. Early web pages contained only text, but due to rapid advancements in technology, the web pages now contain pictures and other multimedia elements in addition to text.

**ADVANTAGES OF WWW:**

- a) WWW is easy to use. Because it is menu driven.
- b) WWW is a graphical internet service that provides a network of interactive documents and the software to access them.
- c) WWW is many things to its millions of users. It may serve as a market place, art gallery, library, community centre, school, publishing house, etc.

**COMMON TERMINOLOGIES RELATED TO WWW:**

Some of the most commonly used terminologies related to WWW are:

**Hypertext or Multimedia:** is a combination of text, audio and video tracks, graphics, sounds, pictures, images and hyperlinks.

**Hyperlink:** It refers to dynamic link upon clicking at which a new web page or program opens.

**Hypertext Markup Language:** It is a standard language used for creating the web pages.

**Hypertext Transfer Protocol (HTTP):** HTTP is a set of rules, or protocols, that governs the transfer of hypertext or multimedia between two or more computers. HTTP generally works in combination with WWW (World Wide Web). The HTTP is responsible for accessing hypertext documents on WWW.

**Web Pages:** A web page is a document that is transferred to a user's computer via HTTP. A web page is created using HTML. The Hyper Text Markup Language (HTML) is the standard language used for creating the web pages. It can contain text plus multimedia elements.

**Home Pages:** This is the first or top level web page of a web site.

**Web Site:** It is a location on an internet server.

**Web Portal:** It is a web site, which hosts other web sites i.e., a web site having hyperlinks to many other web sites, is called a web portal. For example, [www.yahoo.com](http://www.yahoo.com) is a web portal.

**Web Address:** It is in URL format and used to identify a web site. A web site has an unique web address. No two web site can have the same web address. A web address have to read from left to right. Example: [www.microsoft.com](http://www.microsoft.com).

**Web Browser (or) Browser:** A web Browser is a WWW client software that allows the user to navigate through the World Wide Web and displays web pages. Example of some common web browser are Microsoft Internet Explorer, Netscape Navigator, Spyglass Mosaic, Opera, Amaya, HotJava, and Lynx.

**Web Servers:** It is WWW server that responds to the requests made by web browsers.

**Net Surfing:** Exploring the web is known as Net Surfing.

## **WEB BROWSERS:**

### **Meaning:**

Web browsers are client software packages that allow the user to navigate through the World Wide Web and displays web pages.

### **Functions of web browsers:**

- It contacts a web server and sends a request for information.
- It receives the information and then displays it on the user's computer.
- 

### **Important Types of Web Browsers:**

The following are popularly used web browsers.

- a) **Mosaic:** This was the first Web Browser and was developed by the National Center for Supercomputing Applications (ACSA) at the University of Illinois at Urbana-Champaign. It is available for Macintosh, Window and XWindows platforms. The software is available free on the internet.

- b) **Net scape navigator:** this was developed in early 1993 by marcandereessen and a team of students and staff at the national center for supercomputing applications (NCSA). This was released in 1994 and is one of the fastest web browsers currently available in the market. It is available in different versions for UNIX, windows and Macintosh platforms and has built-in e-mail and newsgroups facilities.
- c) **Microsoft internet explorer:** this is based on NCSA mosaic and is distributed under a licensing agreement with spyglass inc. this is a shareware software and can be downloaded from the internet. It comes in different versions for various windows products.
- d) **Lynx:** this is a text-based web browser that enables a user to see the text of files that are available on the world wide web. using lynx, a user will not be able to experience the graphics, sounds, video, photographs etc. that are available on the web. The distributed computing group of university of originally developed lynx.
- e) **Mozilla Firefox** is a web browser that offers users ease of use and security. It is designed to support HTML5, JavaScript, and WebGL. It focuses a lot on user preferences, saving frequently-visited sites, and keeping track of sites, that users favorite during browsing. It also saves browsing sessions so that when users return to their browsers after having quit them, Firefox offers to restore their most recent sessions.
- f) **Google Chrome** is an open source browser program for accessing the World Wide Web and running Web-based applications. The Google Chrome Web browser is based on the open source Chromium project. Google released Chrome in 2008 and issues several updates a year. It is available for Windows, Mac OS X, Linux, Android and iOS operating systems. The Google Chrome browser takes a sandboxing-based approach to Web security. Each open website runs as its own process, which helps prevent malicious code on one page from affecting others (or the computer operating system at large). The browser also supports Web standards such as HTML5 and cascading style sheets (CSS).

## USEFUL SERVICES ON WWW:

The following are the useful services of www.

- a) **Information retrieval:** www is useful to visit various interesting web sites for thirst of knowledge. Some of the following web sites are useful to gain more knowledge.
  - http://www.britannica.com --- this web site gives a free online encyclopedia.
  - http://www.funbrain.com --- this site is a fun site dedicated to the children enjoyment.
- b) **E-mail:** The most widely used tool on the internet is electronic mail or e-mail. Electronic mail allows information to be sent between computers and people on the internet. Some web sites like [www.hotmail.com](http://www.hotmail.com), [www.rocketmail.com](http://www.rocketmail.com), etc., provide free e-mail services the internet users. E-mail facility in WWW is cheaper, speedy, reducing wastage, ease to use and record maintenance.

- c) **Search Engines:** Suppose if internet users do not know which web site would provide a particular information, that can be searched through search engines. A search engine is a program that searches through a database of web pages for particular information. For instance, a student interested in engineering, might want to know what streams are offered by various engineering colleges in India. In such a case, search engine is very useful, as it provides a facility to search for the desired information. Some examples of search engines are [www.yahoo.com](http://www.yahoo.com), [www.excite.com](http://www.excite.com), etc.
- d) **Read and post articles in newsgroups:** A Newsgroup or Forum is a one of the service available in internet. It is online community bulletin board, where users can post messages, respond to posted messages, or just read them.
- e) **Chat with other users on-line:** Chat is online textual conversation wherein the message typed by the sender is instantly made available to the recipient and vice-versa. The online textual phone is one of the latest facility available in Internet. The Internet Relay Chat (IRC) is a multi-user chat system that allows many people to communicate simultaneously over the internet. Web based chat is usually more colourful include images and sounds with messages. <http://www.wbs.net> is an example web site for Web based chat.
- f) **Video conferencing:** A two-way videophone conversation among multiple participants is called Video Conferencing. It is one of the latest facility available in Internet.
- g) **Download files to your PC:** The internet users who can make the copy of requested web page or file or document on their computer. This is called Downloading.
- h) **Uploading files to Net servers:** This can be done by the internet users whenever they express their innovations. Uploading refers to the process of transferring files from a local computer to a net server.
- i) **Play games with other on-line:** The internet users can play games with other with the help of online web sites. Example: <http://www.zone.com> is a web site for playing games on-line.
- j) **Access on-line multimedia including radio and video broadcasts:** With the help of internet web sites, the users can access on-line multimedia including radio and video broadcasts. Examples: [www.sun.net](http://www.sun.net), [www.bbc.net](http://www.bbc.net), etc., are web sites for online television network.
- k) **Creating your own web sites:** Through WWW, you can create your own web sites.
- l) **Join contests:** With the help of WWW, the users can join contests any where in the world.
- m) **Contribute articles and other materials:** WWW is a media through which the users can contribute their new ideas and innovations to the world.

- n) **E-commerce:** Buying and selling goods on the web is called e-commerce. Now a days, it is a way of enabling business over the Net. To make the facility available to all the internet users, every business company is required to create a web site. Online shopping can be done through e-commerce.

### CAMPARISION BETWEEN E-MAIL AND CHAT / VIDEO CONFERECING:

E-MAIL	CHAT / VIDEO CONFERECING
1. It refers to sending and receiving messages electronically.	1. It refers to a two way chat/video conferencing among multiple users in net.
2. For e-mail, the sender and the recipient need not be online at the same time.	2. For chat/video conferencing, the sender and recipient must be online at the same time.
3. E-mail can be retrieved at a later available time by the recipients.	3. Video conferencing is instant, and not at later time.

### ADVANTAGES OF E-MAIL:

The following are the advantages of e-mail.

**Low costs:** Sending mail by e-mail is some what cheaper as compared to sending mail through courier service or by postal service.

**Speed:** Electronic mail can be delivered almost as fast as the wire can carry it.

**Waste Reduction:** E-mail goes a long way toward reducing the clutter of paper in the modern office, not to mention saving many trees.

**Ease of use:** It is easy to send an e-mail. You don't have to retype it for a number of times, find an envelope, go to the post office to buy a stamp, and then find a mail box.

**Record Maintenance:** Because all messages are files, you can automatically maintain a record of communications with someone else.

**Patience:** E-mail waits until you read it. It doesn't have the jangling urgency of a phone call.

### LIMITATIONS OF E-MAIL:

The following are the disadvantages of e-mail.

**Hardware requirement:** You have to be at a computer to read or print e-mail.

**Impermanent:** Your sent mail message can be altered in all the ways that operating system offers, including text changes and outright deletion.

**A hasty medium:** Because e-mail is so easy to use, it is also send a message that you later regret.

**Hard to convey emotion:** Without the extra cues of voice, posture and expression, it is easy to misunderstand what some really means in a message. Jokes, sarcasm and irony are particularly easy to miss.

## **CHAPTER-II**

### **INTRODUCTION TO E-COMMERCE**

#### **INTRODUCTION:**

The evolution of information technology has brought in many changes in the business activity. E-Commerce (Electronic commerce) the latest concept which helps the executives to take a browser view and to understand that technology will redefine the very rules of business. The concept is new in India and yet to gather momentum, but in developed countries it is passing through a matured phase.

#### **COMMERCE:**

In order days people used to exchange the commodities depending upon their requirements and to call it as the commerce.

The dictionary defines it as “the exchange or buying and selling of commodities on a large scale involving transportation from place to place.

#### **E-COMMERCE:**

E-Commerce is general term for the exchange of valuable information, goods and services that occurs between connected computers.

E-Com is simply an extension of regular commerce. In other words, it is their on-line exchange or sale and purchase of goods and service.

#### **ORIGIN OF E-COMMERCE ACTIVITIES:**

The concept of E-Commerce has been directly derived from EDI (Electronic Data Interchange). Back in 1979, the ANSI with intention of developing uniform standards for electronic exchange of business transactions. The result was series of standards for EDI.

With internet related developments taking place (web revolution, internet and extranet) finally in 1996, birth of E-Commerce took place. EDI is entirely business-to-business where as E-Commerce covers all aspects of the community. Internet to business has been what roads/harbors/airports had been to industrial revolution. With the birth of E-Commerce in 1996, the year 1997 saw it sit up and in the year 1998, it began to crawl and entered into mainstream consciousness in the current year, it's on the take off course.

#### **CONCEPTUAL DEFINITIONS:**

There are some important conceptual definitions in E-Commerce.

There are

1) Internet is a system of connected computer that allows the desktop computer to exchange data, messages and files with any of millions of other with connection to the internet.

2) Network:- It means the joining together of many computers.

3) Wide Area Network: It users data set over telephone lines an opposed to cables.

4) World Wide Web (W.W.W): It organize internet related resources easily assess the information available on the internet.

5) E-Mail: It is the process of sending and receiving messages and files between other internet and online services users.

### **NEED OF E-COMMERCE:**

E-Commerce is a vehicle, to be used judiciously, to get competitive advantages and to make one's presence felt in national and international trade. Moving online is not a matter of reducing costs, reaching out new efficiencies, performing tasks with greater speed and convenience, supplanting or replacing existing commercial transaction with electronic transactions to boost paper less concept of commerce and not doing anything physically or manually, rather it is about establishing a presumptive dominance in the market place that will assure long-term competitive advantages.

With the liberalisation of the economy in most part of the world and emergence of concept of global villages, international trade is inevitable. EC removes the barriers of time and distance, it checks the misuse of resources due to the market imperfections, especially in developing and under developed countries.

### **OBJECTIVES OF E-COMMERCE:**

The various objectives of E-Commerce can be listed as

1) Development of business relationship:-

The business development can be done through the E-Commerce being the primary and the basic object. As their direct contact, in between the company and the consumer, the business relationship will be enhanced. Hence, the area of the Market can be increased.

2) Better Customer Service:-

As it is done round the clock customer will always have online help regarding the product. As all the information is furnished to the customer it becomes easy to him to choose the best product among the all other alternatives. As even the service can also be dome through the net immediately, the customer service will be increased. By highlighting the customer service, the companies are trying to subjugate a lion share in the market.

3) Getting more customers:-

In these days it becomes the man-date of the companies it double it is customers, and this can be done by rendering the value add service, and maintaining the quality. Hence, it is also primary objective of the companies, which impetus for the robust growth in sales and overall profit.

## **BENEFITS OF E-COMMERCE:**

The E-Commerce is giving the ripen fruits to its esteemed customers by expediting its service at a minimum cost. A number of companies have piped in large amount of investment. The various benefits of E-Commerce can be listed out as follows:

**1) Improved cash flow:**

Business cash flow can be increased by e-shopping, because many of the traders put their services in online e-shopping.

**2) Inventory reduction:**

Inventory cost can be minimised by adopting just in time systems and enhancing the firm's ability to forecast demand more accurately.

**3) Improved customer service:**

It has been found that providing customer and after sales services can account up to 10% of operating cost. Since under e-commerce, many of the services can be put online, these cost get reduced, with simultaneous improvement in service quality.

**4) Enhanced office productivity:**

All the office proceedings and written documents can Be kept in the computer system connected by net. It enhances office productivity.

**5) Faster information flow:**

Because of flexibility of time, place and distance, e-commerce users can get information.

**6) Accuracy of the information:**

E-commerce use can get accurate information from business people. because the business people maintain their data daily.

## **DISADVANTAGES OF E-COMMERCE:**

Even though the e-commerce is heart-breaching technology, it is not perfect by itself. It still has some corners, which have to be engraved. The e-commerce is possible only when customer can provide his credit card number. But there is no guarantee that it will be confidential. The carious disadvantages can be listed down as

- No proper security is available.
- The selection of commodities cannot be done through personal inspection.
- The assessment of all leveled taxes cannot be done properly.
- It needs massive infrastructure and higher investments.
- It failed to muster the confidence of the people.
- It needs the credit card system which is now just on the swing.
- It needs higher awareness in the field of computer.
- There is no security for the reliability of the available data on the computer.

## **TYPES OF E-COMMERCE OR LEVELS OF BUSINESS:**

There are several ways in which e-commerce products and services can be sold. All these kinds of selling is the part of the following five levels of e-commerce. They are

- 1) business to business (B2B)
- 2) business to consumer (B2C)
- 3) consumer to consumer (C2C)
- 4) Business to Government (B2G)
- 5) Government to Consumer (G2C)

### **1. Business to Business (B2B):**

As the name indicates, businesses that sell to other businesses. For example, intel sells its Chip to the other business-OEMs who make computers.

### **2. Business to consumers (B2C):**

Hero businesses directly sell to the end customer, some enterprising players have already started offering online shopping with books, flowers and other gift items.

A New concept of Consumer to Business transaction may also be put in the category. Under this concept give the customer what he wants at the price he wants without merchant to suffer public embarrassment. [www.priceline.com](http://www.priceline.com) is providing airline tickets at the demanded price by the customer.

### **3. Consumer to Government (C2C):**

Not very common at present, Most visible example of auction sites. If one has something to sell then he can get it listed at an auction site and others can bid for it. [www.ebay.com](http://www.ebay.com) has brought the concept of virtual auction to the consumer to consumer space.

### **4. Business to Government (B2G):**

In this level, such service as filling of IT returns by corporate houses, corporate taxes-renewal of trade licenses, etc., can be considered initially.

### **5. Government to Consumer (G2C):**

Records of land revenue and licenses by Govt., renewals of driving licenses, passport, filling IT returns, filling complaints, payments of bills, payment of dues, etc., by individuals are some of the services, which can be put and should be taken in this category.

## **FUNCTION OF ELECTRONIC COMMERCE:**

There are four functions of Electronic Commerce. They are:

1. Communications
2. Process Management
3. Service Management
4. Transaction Capabilities.

The communication function is basically the delivery of information and / or documents to facilitate business transactions. E-mail is an excellent example.

The process management includes process improvement functions, which covers the automation and improvement of business processes. A good example of this would be networking two computers together so that they could share & transfer data rather than have a person to take data from one machine to another.

Service management is the function of Electronic Commerce. This is type application of technology to improve the quality of service. A good example of this function is the Federal Express Web Site. It permits customers to track shipments and schedule pick-ups 24 hours a day world wide without having to talk to a customer service representative. Customer service is greatly enhanced due to the capabilities of the site.

The final function of Electronic Commerce is transaction capabilities. The provides the ability to buy/sell on the internet or some other online service. The retail web sites of Amazon.com & REI offer a good examples.

**DIFFERENCE BETWEEN CONVENTIONAL OR TRADITIONAL COMMERCE AND E-COMMERCE:**

<b>Conventional Commerce</b>	<b>E-Commerce</b>
<ol style="list-style-type: none"> <li>1. In the conventional commerce the purchaser is communicating physically to the manufacturing corporation through the retailer to wholesaler to distributor / importer, etc.</li> <li>2. Here inventory costs cannot be minimised by adopting just in time systems.</li> <li>3. Cost reduction in traveling expenses, postal expenses, advertisement etc., is not possible.</li> <li>4. Here products cannot be marketed quickly. Because most of customers/sellers who physically analyze about product quality, product cost, payment after sale/ purchase etc.</li> <li>5. There is no need to aware about the technical aspects of hardware and software when the users use traditional commerce.</li> </ol>	<ol style="list-style-type: none"> <li>1. In the e-commerce the information is transmitted via the internet through a new set of intermediaries. Here there is no need for personal contact between persons.</li> <li>2. Inventory costs can be minimised by adopting just in time systems and enhancing the firm's ability to forecast demand more accurately.</li> <li>3. Because of online services, it is possible for cost reduction in all expenses.</li> <li>4. Here products can be marketed quickly. Because most of sellers/customers who sell or purchase their products through online net.</li> <li>5. Technical aspects of hardware and software are to be known to the users, when the users use e-commerce.</li> </ol>

## **E-TRANSACTIONS:**

A major fear of those involved in e-commerce is security. Businesses and individuals are to conduct electronic transaction on the internet. Parties involved in an e-transaction are:

1. Cardholder
2. Issuer
3. Merchant
4. Acquirer
5. Payment gateway

### **1. Cardholder :-**

He uses a payment card that has been issued to him by an issuer .SET ensures that the cardholder's accounting information remains confidential while dealing with a merchant.

### **2. Issuer:-**

An issuer is the financial institution that issues a payment card to an individual. The issuer has to guarantee payment for authorised transactions made between the cardholder and the merchant.

### **3. Merchant:-**

Merchant offers goods or services in exchange for payment

### **4. Acquirer:-**

He is a financial institution that works in tandem with a merchant and helps the merchant to process the various payment card transactions that he receives.

### **5. Payment gateways:-**

A payment presented with an order form containing the list of items and the prices. If he chooses to purchase the goods SET jumps into action and sends the cardholder's accounting information to the merchant using the secure channels described.

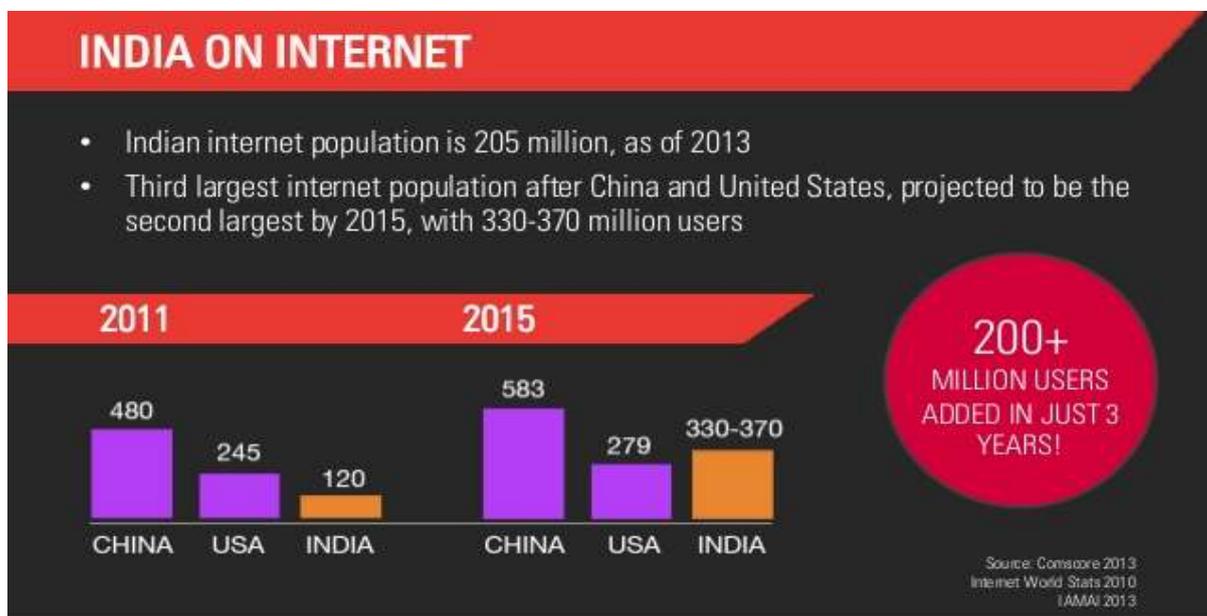
## **E-BANKING:**

The banks are providing only a few value added services like personal banking and having a live interaction with the customers. This also depends on the extent the customer uses the internet Banking service (IBS).

Banking clients no longer need to stand in queues at the banks for any transaction. They can just do it comfortably from their home, office or even from the remote location across the world. New deposit combination, 24 hour ATM (automatic Teller machine) center, 20 second electronic fund transfer, online application submission, online investment and fund information, interactive banking including access to accounts and details of transaction are among the services already available mainly in European union, North American Markets, developed countries like japan, Singapore, etc., and are in the conceptual, planning and development stage in the most part of the world such as Asia pacific rim countries including India.

## E-COMMERCE IN INDIA:

**Electronic Commerce** is more than just buying and selling products online. It also includes the entire online process of developing, marketing, selling, delivering, servicing and paying for products and services. India has shown tremendous growth in the E-commerce segment. With an **internet user base of over 300 million**, India has third largest internet population after US & China (see info-graphic below).



India has witnessed a major breakthrough E-commerce success stories particularly in **e-retail in Consumer Electronics & Fashion Apparel & Home Furnishing segments**. E-commerce creates new opportunities for **entrepreneurial start-ups**. Ease of Internet access, Safe and secure payment modes coupled with aggressive marketing by E-Commerce Giants has revolutionized this segment. Rapid development in mobile technology has given way to **Mobile Commerce** with many E-Commerce companies shifting to App only model.

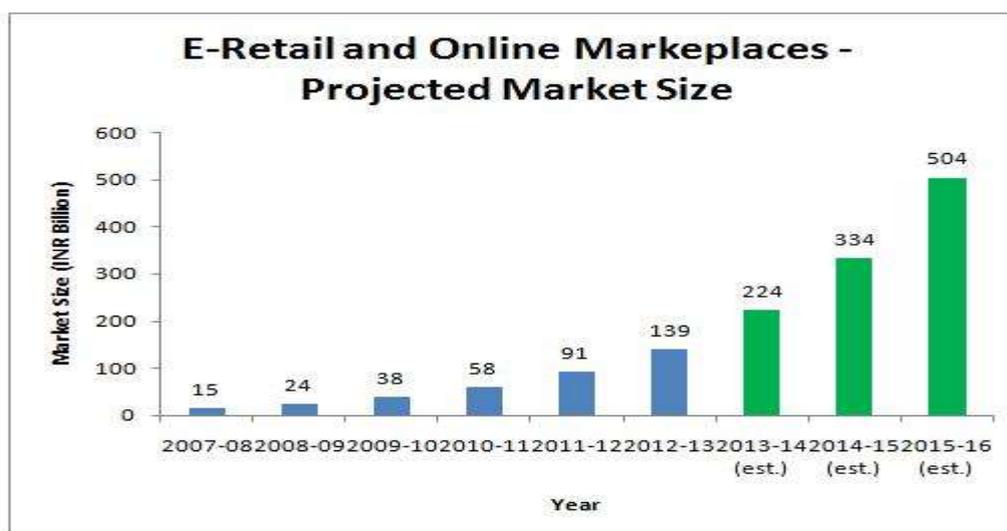
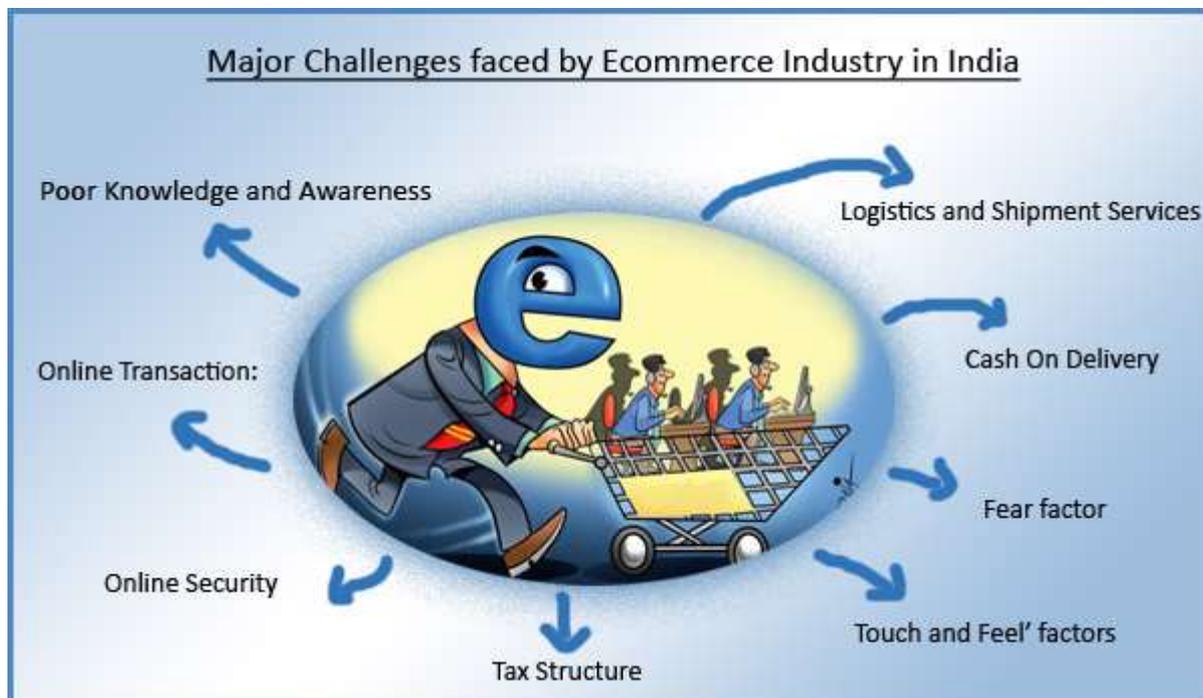


Exhibit 2 Growth Forecast for online retailing and marketplaces in India

Source: CRISIL

## CHALLENGES OF E-COMMERCE IN INDIA:

E-Commerce, in spite of the opportunities it presents also has poses certain challenges which are sometimes too much to handle for start-ups:



**E-Infrastructural Issues:** Internet is the backbone of e-commerce. Unfortunately, in India internet penetration is so far dismally low at 0.5 per cent of the population, penetration of personal computer (PC) as low as 3.5 per thousand of population and penetration of telephone only 2.1 per cent of population, e-commerce remains far away from the common man.

**Branding & Marketing:** To get people to come on an e-Commerce site and make a purchase involves heavy cost due to branding and marketing. This cost is significant and can be brought down to cost per customer, if the volumes permit to do so. Experts say that the average figure for this metric in the current e-Commerce ecosystem is between INR 500 – 1000 customer, which isn't sustainable for even medium sized companies, let alone early stage ones.

**Declining Margins:** With the introduction of a large number of players in the already competitive e-commerce market, the customer is pampered by offering huge discounts, offers, taking returns etc. resulting in razor-thin margins.

**Logistics & Supply Chain:** Logistics failure in any area can mean detrimental damage to a startup's future and can hurt the brand overall. Add to this the need for a guaranteed return policy. Getting this right is a challenge.

**Tax related issues:** Tax rate system of Indian market is another factor for lesser growth rate of e-commerce in India in comparison to other developed countries like USA and UK. In those countries, tax rate is uniform for all sectors **whereas** tax structure of India varies from sector to sector. This factor creates accounting problems for the Indian online business companies.

**Touch and Feel:** Indian customers are more comfortable in buying products physically. Companies dealing with products like apparel, handicrafts, jewelry have to face challenges to sell their products as the buyers want to see and touch before they buy these stuffs.

#### **FUTURE OF E-COMMERCE IN INDIA:**

**Social Media: Majority of online buying decisions are made on Social Media.** Social network like Facebook, LinkedIn, Twitter, Google+, Pinterest etc have become a medium for easy log-in and purchase. Moreover, the clients can stay updated via the posts published on this media. Further, the advertising & promotions on these social sites has increased the chances of success of generating transactions to many folds.

**Drone Delivery:** Companies have been working their way around to innovate the delivery process to shorten human effort as well as time. The answer to these problems is Delivery by Drones. DGCA is now fast tracking the process of issuing guidelines for the use of drones for civil purposes in India. If everything goes as per the plan, then India might become the first country in the world to allow the use of drones for civil purposes.

**App only Approach:** Statistics suggest the future of internet lies in mobiles. Experts say more than 580 million people in India will use the Internet by 2018, and 70-80% of them will access the Web on mobile phones. This will cause all major players to switch to app only model. About two-thirds of its online traffic of Flipkart comes from users in small cities and towns. Flipkart's app-only approach assumes larger significance in these places where most people don't own desktop computers and have limited access to broadband.

**Google's Buy Now Button:** Google is reportedly working on its own "Buy Now" style button that would allow e-shoppers search for products on Google and purchase them with a single click, right through Google's own search results page. The button will be displayed near sponsored search results beneath a "Shop on Google" heading at the top of the page. When users click on the Google's "Buy Now" button, they will be re-directed to another Google page that will allow them to choose specific item details, such as color and size, and then select a shipping route. Google would then pass on order information, including the customer's name and shipping address, to the retailer.

**Artificial Intelligence:** As the ecommerce space gets saturated, investors looking for innovative use of technology are zeroing in on companies developing artificial intelligence (AI) solutions. Jet Airways is experimenting with one such solution devised by Vizury. It sifts through the individual's public content on the internet, as well as the customer's previous searches and creates an instant profile. Based on this information, the airline knows whether to package hotel deals, or simply stick with airfare discounts. The system also allows them to predict how likely is it for the customer to upgrade, and how flexible would the customer be to change travel location or date.

## CHAPTER – III

### ELEMENTS OF ELECTRONIC COMMERCE FRAMEWORK

#### NETWORK INFRASTRUCTURE:

Network infrastructure refers to the hardware and software resources of an entire network that enable network connectivity, communication, operations and management of an enterprise network.

Network infrastructure provides the communication path and services between users, processes, applications, services and external networks/the Internet. A typical network infrastructure includes:

#### (A) NETWORKING HARDWARE:

- **Router**

A router is hardware device designed to receive, analyze and move incoming packets to another network. It may also be used to convert the packets to another network interface, drop them, and perform other actions relating to a network.

- **Switch**

A switch is a piece of a physical circuitry component that governs the signal flow. Having a switch or toggle switch allows a connection to be opened or closed. When opened the switch allows a signal or power to flow through the connection. When closed the switch stops the flow and breaks the circuit connection.

- **LAN cards**

A LAN card connects a computer to a network, whether local or foreign. LAN cards typically connect to a computer's motherboard via a serial port.

- **Wireless router**

A wireless router is a device that performs the functions of a router and also includes the functions of a wireless access point. It is used to provide access to the **Internet** or a private computer network.

- **Cable**

A **cable** is one or more wires covered in a plastic covering that connects a computer to a power source or other device. There are two main types of computer cables, a **data cable** and a **power cable**.

#### (B) NETWORKING SOFTWARE:

- **Network operations and management**

A network operations center (NOC, pronounced like the word knock), also known as a "network management center", is one or more locations from which network

monitoring and control, or network management, is exercised over a computer, telecommunication or satellite network.

- **Operating systems**

Network Operating System is an operating system that includes special functions for connecting computers and devices into a local-area network (LAN) or Inter-network. Some popular network operating systems are Novell Netware, Windows *NT/2000*, Linux, Sun Solaris, UNIX, and IBM *OS/2*.

- **Firewall**

A firewall is a network security device that monitors incoming and outgoing network traffic and decides whether to allow or block specific traffic based on a defined set of security rules. A firewall can be hardware, software, or both.

- **Network security applications**

"Network security application" refers to any activity designed to protect the usability and integrity of your network and data. It includes both hardware and software technologies. Effective network security manages access to the network. It targets a variety of threats and stops them from entering or spreading on your network.

## **(C) NETWORK SERVICES:**

- **T-1 Line**

A T1 line is a dedicated transmission connection between a service provider and client. It uses an advanced telephone line to carry more data than a traditional standard analog line that carries a single channel of data at 64 Kbps.

- **DSL**

DSL (Digital Subscriber Line) is a technology for bringing high- bandwidth information to homes and small businesses over ordinary copper telephone lines.

- **Satellite**

Satellite Internet is the ability to transmit and receive data from a relatively small satellite dish on Earth and communicate with an orbiting geostationary satellite 22,300 miles above Earth's equator.

- **WAP (Wireless Application Protocol)**

WAP (*Wireless Application Protocol*) is a specification for a set of communication *protocols* to standardize the way that *wireless* devices can be used for Internet access.

- **IP addressing**

An IP addressing is a binary number that uniquely identifies computers and other devices on a TCP/IP network.

## **INFORMATION AND DISTRIBUTION TECHNOLOGY:**

Information distribution and messaging technologies provide a transparent mechanism for transferring information content over a network infrastructure layer. It is accomplished through the following systems for exchanging multimedia contents consisting of text, graphics, video and audio data.

- File Transfer Protocol (FTP)
- Hypertext Transfer Protocol (HTTP)
- Electronic Mail
- Simple Message Transfer Protocol (SMTP)
- News Groups
- World Wide Web

### **(a) File Transfer Protocol (FTP):**

FTP is a protocol or a set of rules, which enables files to be transferred between computers in the internet. It is part of the TCP/IP protocol suite. FTP works on the client/server principle. Client means that a computer asks information from another computer or server. Server means that a computer accepts the connection initiated by the client and sends back a response.

### **(b) Hypertext Transfer Protocol (HTTP):**

HTTP is a set of rules, or protocols that governs the transfer of hypertext or multimedia between two or more computers. Hypertext or Multimedia is a combination of text, audio and video tracks, graphics, sounds, pictures, images and hyperlinks.

### **(c) Electronic Mail**

Electronic mail, or email, is a method of exchanging digital messages between people using digital devices such as computers, tablets and mobile phones.

### **(d) Simple Message Transfer Protocol (SMTP)**

SMTP is one of the most common and a popular protocol for email communication over the Internet and it provides intermediary network services between the remote email provider or organizational email server and the local user accessing it.

### **(e) News Groups**

These are discussions in the network news system. The discussion topics are range from recreational activities to scientific research.

## **(f) World Wide Web**

WWW is a set of programs, standards, and protocols that allows the multimedia and hypertext files to be created, displayed and linked on the internet.

### **NETWORK MULTIMEDIA CONTENT PUBLISHING TECHNOLOGY:**

The network multimedia content publishing technology is based on the following factors.

- Hypertext Markup Language (HTML)
- Web Browsers
- Common Gateway Interface
- Multimedia content
- Other Multimedia objects
- Virtual Reality Modeling Language (VRML)

#### **(a) Hypertext Markup Language (HTML)**

HTML is the "mother tongue" of your browser. HTML was invented in 1990 by a scientist called Tim Berners-Lee. HTML is a standardized system for tagging text files to achieve font, colour, graphic, and hyperlink effects on World Wide Web pages.

HTML defines the structure and layout of a Web document by using a variety of tags and attributes. The correct structure for an HTML document starts with **<HTML><HEAD>**(enter here what document is about)**<BODY>** and ends with **</BODY></HTML>**. All the information you'd like to include in your Web page fits in between the **<BODY>** and **</BODY>** tags.

#### **(b) Web Browser**

Web Browser is an application software that allows us to view and explore information on the web. User can request for any web page by just entering a URL into address bar.

Web browser can show text, audio, video, animation and more. It is the responsibility of a web browser to interpret text and commands contained in the web page.

Earlier the web browsers were text-based while nowadays graphical-based or voice-based web browsers are also available. The following are the most common web browser available today, namely, Internet Explorer, Google Chrome, Mozilla Firefox, Netscape Navigator, Opera and Safari.

### **(c) Common Gateway Interface**

The common gateway interface (CGI) is a standard way for a Web Server to pass a Web user's request to an application program and to receive data back to forward to the user. When the user requests a Web page (for example, by clicking on a highlighted word or entering a Web site address), the server sends back the requested page. However, when a user fills out a form on a Web page and sends it in, it usually needs to be processed by an application program. The Web server typically passes the form information to a small application program that processes the data and may send back a confirmation message. This method or convention for passing data back and forth between the server and the application is called the common gateway interface (CGI). It is part of the Web's Hypertext Transfer Protocol (HTTP).

### **(d) Multimedia content**

Multimedia content is the horn of abundance of online content. It bonds writing with images, videos, audio and slideshows in a useful and engaging way. People are far more likely to engage with and share your stories and posts if they contain images, graphics, audio clips or video presentations.

### **(e) Other Multimedia objects**

Multimedia objects (OBJE) are files that contain e.g. images, scanned documents, audio recordings, video clips etc. that relate to some fact within our genealogical data. A multimedia object may be linked with several entities (person, family, source, ...) and vice versa.

### **(f) Virtual Reality Modeling Language (VRML)**

Virtual Reality Modeling Language is a language for describing three-dimensional (3-D) image sequences and possible user interactions to go with them. Using VRML, you can build a sequence of visual images into Web settings with which a user can interact by viewing, moving, rotating, and otherwise interacting with an apparently 3-D scene. For example, you can view a room and use controls to move the room as you would experience it if you were walking through it in real space.

## SECURITY AND ENCRYPTION:

Security is an essential part of any transaction that takes place over the internet. Customer will lose his/her faith in e-business if its security is compromised. Following are the essential requirements for safe e-payments/transactions –

- **Confidential** – Information should not be accessible to unauthorized person. It should not be intercepted during transmission.
- **Integrity** – Information should not be altered during its transmission over the network.
- **Availability** – Information should be available wherever and whenever requirement within time limit specified.
- **Authenticity** – There should be a mechanism to authenticate user before giving him/her access to required information.
- **Non-Repudiation** – It is protection against denial of order or denial of payment. Once a sender sends a message, the sender should not be able to deny sending the message. Similarly the recipient of message should not be able to deny receipt.
- **Encryption** – Information should be encrypted and decrypted only by authorized user.
- **Auditability** – Data should be recorded in such a way that it can be audited for integrity requirements.

### Measures to ensure Security

Major security measures are following –

- **Encryption** – It is a very effective and practical way to safeguard the data being transmitted over the network. Sender of the information encrypts the data using a secret code and specified receiver only can decrypt the data using the same or different secret code.
- **Digital Signature** – Digital signature ensures the authenticity of the information. A digital signature is an e-signature authentic authenticated through encryption and password.
- **Security Certificates** – Security certificate is unique digital id used to verify identity of an individual website or user.

## Security Protocols in Internet

Following are the popular protocols used over the internet which ensures security of transactions made over the internet.

- Secure Socket Layer (SSL)
- Secure Hypertext Transfer Protocol (SHTTP)

### (a) Secure Socket Layer (SSL)

It is the most commonly used protocol and is widely used across the industry. It meets following security requirements –

- Authentication
- Encryption
- Integrity
- Non-reputability

"https://" is to be used for HTTP urls with SSL, where as "http://" is to be used for HTTP urls without SSL.

### (b) Secure Hypertext Transfer Protocol (SHTTP)

SHTTP extends the HTTP internet protocol with public key encryption, authentication and digital signature over the internet. Secure HTTP supports multiple security mechanism providing security to end users. SHTTP works by negotiating encryption scheme types used between client and server.

## PAYMENT SERVICES:

Payment services are nothing but e-commerce payment system. An e-commerce payment system facilitates the acceptance of electronic payment for online transactions. Also known as a sample of Electronic Data Interchange (EDI), e-commerce payment systems have become increasingly popular due to the widespread use of the internet-based shopping and banking.

E-Commerce or Electronics Commerce sites use electronic payment where electronic payment refers to paperless monetary transactions. Electronic payment has revolutionized the business processing by reducing paper work, transaction costs, labour cost. Being user friendly and less time consuming than manual processing, helps business organization to expand its market reach / expansion. Some of the modes of electronic payments are following.

- Credit Card
- Debit Card
- Smart Card
- E-Money
- Electronic Fund Transfer (EFT)

### **BUSINESS SERVICE INFRASTRUCTURE:**

Business service infrastructure includes directories and catalogues. These are essential for identifying and locating businesses that meet customer requirements. The directories and catalogs are akin to Business Directories and Yellow Pages used by customers to identify and locate businesses that are likely to provide the service or fulfill product demand in traditional commerce. Search engines and directory service providers like Google, Yahoo, Bing, Vivisimo Clustering Engine, Dogpile, Altavista, Overture, HotBot, AlltheWeb, AOL, Ask.com, Blekko etc., identified and capitalised on the need by providing the service.

### **PUBLIC POLICY AND LEGAL INFRASTRUCTURE:**

#### **Public Policy:**

Public policy is the principled guide to action taken by the administrative executive branches of the state with regard to a class of issues, in a manner consistent with law and institutional customs. The foundation of public policy is composed of national constitutional laws and regulations. Further substrates include both judicial interpretations and regulations which are generally authorized by legislation.

In the United States, the Federal Trade Commission (FTC) is the primary agency that regulates e-commerce activities. This includes regulations for a number of e-commerce activities such as commercial email, online advertising and consumer privacy.

E-Commerce in India is a totally different class. It has all the advantages of profit making and commercial viability but is neither regulated by any dedicated e-commerce law, although we have IT Act, 2000, which happens to be the first Cyber Law in India. It is based on UNCITRAL (United Nations Commission on International Trade Law) model law. It provides treatment for users of electronic communications & paper based communication.

## **Legal Infrastructure:**

The development and implementation of a harmonised legal infrastructure for e-commerce can facilitate the development of e-commerce by providing parties with certainty that their transactions will be recognised in multiple jurisdictions.

The term 'legal infrastructure' is a well-recognised term in international law that refers to the combination of elements required to make laws work effectively.

Legal infrastructure includes:

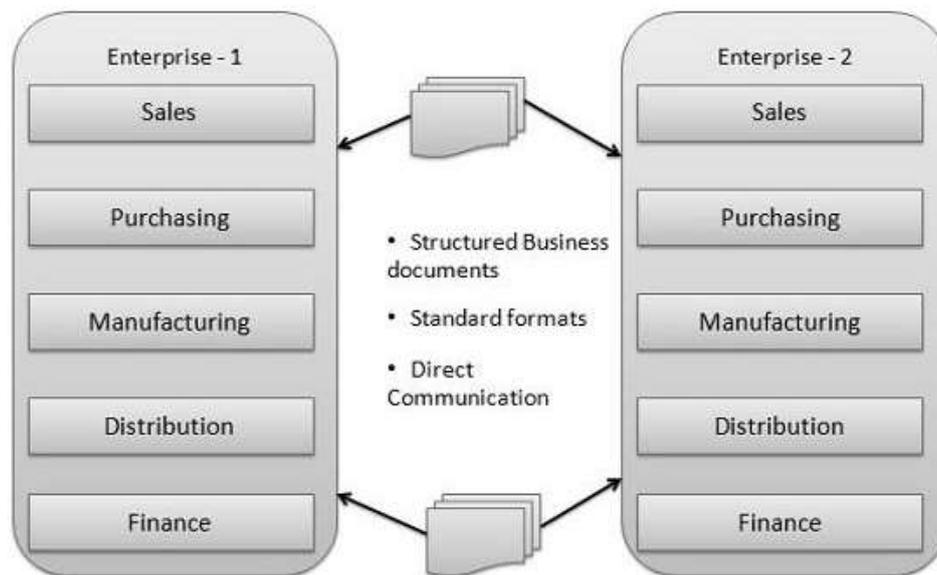
- **Laws**  
The law itself, as passed by Parliament.
- **Regulations and Codes**  
Any additional regulatory instruments which provide more specific guidance on how to apply the law, such as regulations and codes of conduct.
- **Regulators**  
The regulatory agencies those are responsible for administering and enforcing the law, regulations and codes.
- **Registration, licensing and accreditation**  
The system, if applicable, for registering, licensing and/or accrediting individuals and organisations who may provide services under the law. This may include the establishment of licensing and accreditation agencies (although sometimes the regulator may also take this role).
- **Standards**  
Government and/or industry may develop technical standards which play a particular role in ensuring compliance with the law. In some instances the law may require compliance with the standard, or it may be a licensing or registration requirement.
- **Enforcement and review**  
Some legal infrastructures will include a specific forum for review and enforcement of the particular law (such as a specialist Tribunal). In many situations this role will be undertaken by the general court system.
- **Training, education and awareness raising**  
The provision of training and education to ensure that the law is understood and complied with, and the raising of awareness of the legal requirements amongst service providers and end users.

## CHAPTER – IV

### ELECTRONIC DATA INTERCHANGE

#### INTRODUCTION

EDI stands for Electronic Data Exchange. EDI is an electronic way of transferring business documents in an organization internally, between its various departments or externally with suppliers, customers, or any subsidiaries. In EDI, paper documents are replaced with electronic documents such as word documents, spreadsheets, etc.



#### **EDI DOCUMENTS:**

Following are the few important documents used in EDI:

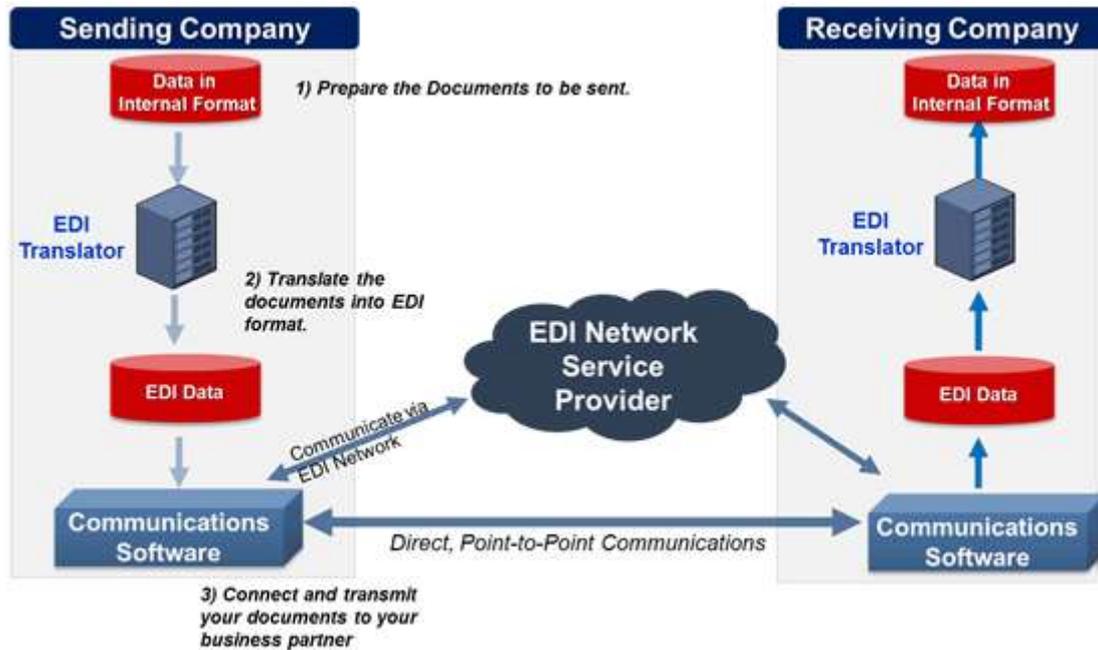
- Invoices
- Purchase orders
- Shipping Requests
- Acknowledgements
- Business Correspondence letters
- Financial information letters

#### **HOW DOES EDI WORK?**

Following are the steps followed in an EDI system.

1. A program generates a file that contains the processed document.

2. The document is converted into an agreed standard format.
3. The file containing the document is sent electronically on the network.
4. The trading partner receives the file.
5. An acknowledgement document is generated and sent to the originating organization.



## ADVANTAGES OF AN EDI SYSTEM

Following are the advantages of having an EDI system.

- (a) **Reduction in data entry errors** - Chances of errors are much less while using a computer for data entry.
- (b) **Shorter processing life cycle** - Orders can be processed as soon as they are entered into the system. It reduces the processing time of the transfer documents.
- (c) **Electronic form of data** - It is quite easy to transfer or share the data, as it is present in electronic format.
- (d) **Reduction in paperwork** - As a lot of paper documents are replaced with electronic documents, there is a huge reduction in paperwork.
- (e) **Cost Effective** - As time is saved and orders are processed very effectively, EDI proves to be highly cost effective.
- (f) **Standard means of communication** - EDI enforces standards on the content of data and its format which leads to clearer communication.

## **CHALLENGES OF AN EDI SYSTEM**

- a) Managerial problems in the support, maintenance and implementation of EDI transactions.
- b) Each entity may have a different method of delivery, ranging from dial-up BBS systems mailing hard media such as a CD-ROM or tape backup.
- c) Lack of strict standards across implementations, transactions and methods.

Improve customer services and Enhance the business process and operations One single computer application cannot handle all health care entities. Though this may not be necessary, it can lead to an obvious management headache as a company attempts to register itself with various EDI partners.

- d) One single computer application cannot handle all health care entities. Though this may not be necessary, it can lead to an obvious management headache as a company attempts to register itself with various EDI partners.

## **EDI APPLICATIONS (or) TYPES OF EDI**

### **1. International trade and EDI:**

EDI has always been very closely linked with international trade. Trade efficiency, which allows faster, simpler, broader & less costly transactions. Role of EDI in international trade•EDI facilitates the smooth flow of information. It reduces paper work. EDI benefits for international trade are1. Reduced transaction expenditures. Quicker movement of imported & exported goods. Improved customer service through “track & trace” programs. Faster customs clearance & reduced opportunities for corruption, a huge problem in trade

### **2. Financial EDI:**

Financial EDI comprises the electronic transmission of payments and remittance information between a payer, payee, and their respective banks. Financial EDI allows business to replace the labour-intensive activities associated with issuing, mailing and collecting checks through the banking system with automated initiation, transmission, and processing of payment instructions. Thus it eliminates the delay inherent in processing checks. Financial EDI also improves the certainty of the payment flows between corporate bank accounts because the payee’s bank can credit its account on the scheduled payment date and the payer’s bank can debit its account on the same day.

### **Types of Financial EDI:**

Traditionally, wholesale or business-to-business payment is accomplished using checks, EFT and automated clearinghouses (ACH) for domestic and international funds

transfer. ACH provides two basic services to industrial and financial corporate customers (including other banks):

- Fast transmission of information about their financial balances throughout the world
- The movement of money internationally at rapid speed for settlement of debit/credit balances.

Banks have developed sophisticated cash management systems on the back of these services that essentially reduce the amount of money companies leave idly floating in low-earning accounts.

### **Automated Clearinghouse (ACH) Transfers**

ACH transfers are used to process high volumes of relatively small-dollar payments for settlement in one or two business days. It provides services: preauthorized debits, such as repetitive bill payments; & consumer-initiated payments.

### **Bank Checks**

Checks are instruments for debit transfers where payees collect funds from payers. Funds made available by banks to depositors of check are provisional and may be reversed if the payer does not have sufficient funds in its account to pay the check when it is received by the payer's bank. Businesses use check to make payments for two main reasons. First, they are a familiar and readily accepted form of payment despite some uncertainty about receiving final payment. Second, business benefits from the float created by the delays in check collection process. Business find float valuable because they can continue to use or invest funds for several days after they have issued the check.

### **Interbank Electronic Funds Transfer (EFT)**

An electronic fund transfer (EFT) is an EDI among financial institutions in which money is transferred from one account to another. Some examples of EFTs include:

- Electronic wire transfers
- Automatic teller machine (ATM) transactions
- Direct deposit of payroll
- Business to business payments
- Federal, state and local tax payments

### **3. Health care EDI for insurance EDI**

Providing good & affordable health care is a universal problem. EDI is becoming a permanent fixture in both insurance & health care industries as medical provider, patients, & payers. Electronic claim processing is quick & reduces the administrative costs of health care. Using EDI software, service providers prepare the forms & submit claims via communication lines to the value-added network service provider. The company then edits sorts & distributes forms to the payer. If necessary, the insurance company can electronically route transactions to a third-party for price evaluation. Claims submission also receives reports regarding claim status & request for additional information

### **4. Manufacturing & retail procurement using EDI:**

These are heavy users of EDI. In manufacturing, EDI is used to support just-in-time. In retailing, EDI is used to support quick response Just-In-Time & EDI. Companies using JIT & EDI calculates how many parts are needed each day based on the production schedule & electronically transmit orders. Delivery has to be responsive, or it will cost too much in money & time. Getting data to suppliers quickly. A major benefit of JIT & EDI is a streamlined cash flow. Quick Response & EDI. For the customer, QR means better service & availability of a wider range of products. For the retailer & supplier, QR may mean survival in a competitive marketplace. Much focus of QR is in reduction of lead times using event-driven EDI. In QR, EDI documents include purchase orders, shipping notices, invoices, inventory position, catalogs, & order status.

### **5. Internet EDI:**

Communication of **EDI** messages via the **Internet**. **Internet EDI** is most often considered in contrast to doing **EDI** via a VAN (Value Added Network). In this situation, **Internet EDI** is simply a communications pathway, where **EDI** data is passed between trading partners using **Internet** protocols.

#### **Advantage of Internet EDI:**

- (a) EDI enables companies to send and receive large amounts of routine transaction information quickly around the globe.
- (b) Computer-to-computer data transfer reduces the number of errors.
- (c) Information can flow among several trading partners consistently and freely.
- (d) Companies can access partners' databases to retrieve and store standard transactions.

- (e) EDI fosters true (and strategic) partnership relationships because it involves a commitment to a long-term investment and the refinement of the system over time.
- (f) EDI creates a complete paperless TPS (transaction processing system) environment, saving money and increasing efficiency.
- (g) Payment collection can be shortened by several weeks.
- (h) Data may be entered off-line, in batch mode, without tying up ports to the mainframe.
- (i) When an EDI document is received, the data may be used immediately.
- (j) Sales information is delivered to manufactures, shippers, and warehouses almost in real time.
- (k) EDI can save companies a considerable amount of money.

### **EDI: LEGAL, SECURITY AND PRIVACY ISSUES**

In EDI, Trading is done between countries and corporations.

- In EDI, legal issues and computer security are important.
- Companies that deal with EDI should take the services of a lawyer during the design of EDI applications, so that evidentiary/admissibility safeguards are implemented.

There are 3 types of communications when considered for EDI issues:

- 1) Instantaneous: - If the parties are face to face or use an instantaneous communication medium such as telephone.
  - 2) Delayed with postal service: - The mailbox rule provides that an acceptance communicated via postal service mail is effectively communicated when dispatched or physically deposited.
  - 3) Delayed with non-postal service: - EX: - Couriers, telegram
- Messaging systems combine features of delayed and instantaneous
  - Messaging delay is a function of the specific applications, message routing, networks traversed, system configuration and other technical factors.

One way of legal & security issue is Digital signatures.

The technical uses of digital signatures are:-

1. Messages are time- stamped or digitally notarized to establish dates and times at which a recipient had access or even read a particular message.
2. These signatures are to replace handwritten signatures, as it is same legal status as handwritten signatures.
3. Digital signatures should have greater legal authority than handwritten signatures.

## CHAPTER – V

### ELECTRONIC PAYMENT SYSTEM

E-Commerce or Electronics Commerce sites use electronic payment where electronic payment refers to paperless monetary transactions. Electronic payment has revolutionized the business processing by reducing paper work, transaction costs, labour cost. Being user friendly and less time consuming than manual processing, helps business organization to expand its market reach / expansion. Some of the modes of electronic payments are following.

1. E-Cash
2. Credit Card
3. Debit Card
4. Smart Card
5. E-Wallet
6. Electronic Fund Transfer (EFT)

#### **1. E-CASH:**

E-Cash means that money that is exchanged electronically over computer or telecommunications networks. It also means that any of various systems of payment for purchases made on the Internet.

#### **Advantages of e-Cash:**

- (a) Anonymity and non-traceability can be maintained with e-cash.
- (b) User ids are kept highly confidential.
- (c) There are hardly any issues regarding "double spending".
- (d) Real-time checking of all transactions makes the possibility of multiple expenditures negligible.
- (e) There is no requirement of additional secure hardware.
- (f) The existing POS (point of sale) hardware can be updated and used.

#### **Disadvantages of e-Cash:**

- (a) There are communication overheads; security and anonymity cost become a bottleneck of the system. This can happen at times during real-time verifications.
- (b) The bank has to maintain massive, detailed, and confidential databases.
- (c) The bank needs to synchronize its server every time transaction is made. It would be insanely impractical to maintain.

## 2. Credit Card:

Payment using credit card is one of most common mode of electronic payment. Credit card is small plastic card with a unique number attached with an account. It has also a magnetic strip embedded in it which is used to read credit card via card readers. When a customer purchases a product via credit card, credit card issuer bank pays on behalf of the customer and customer has a certain time period after which he/she can pay the credit card bill. It is usually credit card monthly payment cycle. Following are the actors in the credit card system.

- The card holder - Customer
- The merchant - seller of product who can accept credit card payments.
- The card issuer bank - card holder's bank
- The acquirer bank - the merchant's bank
- The card brand - for example , visa or mastercard.

### Advantages of Credit Cards:

**Easy access to credit-** the biggest advantage of a credit card is its easy access to credit. Credit cards function on a deferred payment basis, which means you get to use your card now and pay for your purchases later. The money used does not go out of your account, thus not denting your bank balance every time you swipe.

**Building a line of credit-** credit cards offer you the chance to build up a line of credit. This is very important as it allows banks to view an active credit history, based on your card repayments and card usage. Banks and financial institutions often look to credit card usage as a way to gauge a potential loan applicant's creditworthiness, making your credit card important for future loan or rental applications.

**EMI facility-** if you plan on making a large purchase and don't want to sink your savings into it, you can choose to put it on your credit card as a way to defer payment. In addition to this, you can also choose to pay off your purchase in equated monthly instalments, ensuring you aren't paying a lump sum for it and denting your bank balance. Paying through EMI is cheaper than taking out a personal loan to pay for a purchase, such as a television or an expensive refrigerator.

**Incentives and offers-** most credit cards come packed with offers and incentives to use your card. These range from cash back to rewards point accumulation each time you swipe your card, which can later be redeemed as air miles or used towards paying

your outstanding card dues. Lenders also offer discounts on purchases made through a credit card, such as on flight tickets, holidays or large purchases, helping you save.

**Flexible credit-** credit cards come with an interest-free period, which is a period of time during which your outstanding credit is not charged interest. Ranging between 45-60 days, you can avail free, short-term credit if you pay off the entire balance due by your credit card bill payment date. Thus, you can benefit from a credit advance without having to pay the charges associated with having an outstanding balance on your credit card.

**Record of expenses-** a credit card records each purchase made through the card, with a detailed list sent with your monthly credit card statement. This can be used to determine and track your spending and purchases, which could be useful when chalking out a budget or for tax purposes. Lenders also provide instant alerts each time you swipe your card, detailing the amount of credit still available as well as the current outstanding on your card.

**Purchase protection-** credit cards offer additional protection in the form of insurance for card purchases that might be lost, damaged or stolen. The credit card statement can be used to vouch for the veracity of a claim, if you wish to file one.

### **Disadvantages of Credit Cards:**

**Minimum due trap-** the biggest con of a credit card is the minimum due amount that is displayed at the top of a bill statement. A number of credit card holders are deceived into thinking the minimum amount is the total due they are obliged to pay, when in fact it is the least amount that the company expects you to pay to continue receiving credit facilities.

This results in customers assuming their bill is low and spending even more, accruing interest on their outstanding, which could build up to a large and unmanageable sum over time.

**Hidden costs-** credit cards appear to be simple and straightforward at the outset, but have a number of hidden charges that could rack up the expenses overall. Credit cards have a number of taxes and fees, such as late payment fees, joining fees, renewal fees and processing fees. Missing a card payment could result in a penalty and repeated

late payments could even result in the reduction of your credit limit, which would have a negative impact on your credit score and future credit prospects.

**Ease of overuse-** with revolving credit, since your bank balance stays the same, it might be tempting to put all your purchases on your card, making you unaware of how much you owe. This could lead to you overspending and owing more than you can pay back, beginning the cycle of debt and high interest rates on your future payments.

**High interest rate-** if you do not clear your dues by your billing due date, the amount is carried forward and interest is charged on it. This interest is accrued over a period of time on purchases that are made after the interest-free period. Credit card interest rates are quite high, with the average rate being 3% per month, which would amount to 36% per annum.

**Credit card fraud-** though not very common, there are chances you might be victim of credit card fraud. With advances in technology, it is possible to clone a card and gain access to confidential information through which another individual or entity can make purchases on your card. Check your statements carefully for purchases that look suspicious and inform the bank immediately if you suspect card fraud. Banks usually waive off charges if the fraud is proven, so you will not have to pay for purchases charged by the thief.

### **3. Debit Card:**

Debit card, like credit card is a small plastic card with a unique number mapped with the bank account number. It is required to have a bank account before getting a debit card from the bank. The major difference between debit card and credit card is that in case of payment through debit card, amount gets deducted from card's bank account immediately and there should be sufficient balance in bank account for the transaction to get completed. Whereas in case of credit card there is no such compulsion.

Debit cards free customer to carry cash, cheques and even merchants accepts debit card more readily. Having restriction on amount being in bank account also helps customer to keep a check on his/her spending.

### **Advantages of Debit Cards:**

- **Easy to apply:** The debit cards can be easily got in the bank. The user should have an account in the bank and he/she will have to fill the form for getting debit card and its respective pin number for security purpose.
- **More Comfortable:** Payment of costly items or things can be easily bought using debit cards rather than writing a check or counting the cash. People can be relaxed while purchasing many items. They needn't take care of insufficient cash in their pocket.
- **Safe:** Keeping debit cards are safer than keeping large amount of cash or checkbook. Since, money can be easily taken from the purse.
- **Convenient for travelers:** Debit cards are accessible all over the world. So, people can easily swipe if during the purchase. Instead of changing the currency for each country.

### **Disadvantages of Debit Cards:**

- **Limited money access:** Debit card takes money from the savings account. So, unlike credit card which give us unlimited money from its account debit cards has limited time period.
- **Managing the account balance:** Monitoring the debit card transactions regularly is main requirement for using checkbook. Keeping track of ATM and purchase transactions is very difficult.
- **Less safety:** Anyone who has the debit card and pin number can access the money. There is no high security for the debit cards since, any user can use it instead of the account holder. Technologies are improving by making it compulsory for the access of account holder alone.
- **Additional fee:** Debit cards can be accessed without any fee only in that specified bank ATM. Accessing from another bank's ATM will cost additional fee and it increases for each transactions. Since, the respective bank ATM cannot be available everywhere, this can be huge disadvantage for the user.

### **4. Smart Cards (or) Stored Value Cards:**

Smart card is again similar to credit card and debit card in appearance but it has a small microprocessor chip embedded in it. It has the capacity to store customer work related/personal information. Smart card is also used to store money which is reduced as per usage.

Smart card can be accessed only using a PIN of customer. Smart cards are secure as they store information in encrypted format and are less expensive/provide faster processing. Mondex and Visa Cash cards are examples of smart cards.

### **Advantages of Smart Cards:**

#### **More Secure**

This simple technology has revolutionized the payment card industry and increased the level of card security. These cards use encryption and authentication technology which is more secure than previous methods associated with payment cards. The microprocessor chip embedded at the heart of the smart card requires contact to the card reader and certain areas of the chip can be programmed for specific industries.

#### **Safe to Transport**

Another advantage to having a smart card is their use in the banking industry (and many other sectors). These cards give the holder freedom to carry large sums of money around without feeling anxious about having the money stolen. In this regard, they are also safe because the cards can be easily replaced, and the person would have to know the pin number to access its stored value. This takes care of the problem with cash; once it is stolen it is nearly impossible to trace and recover it.

#### **Double as an ID Card**

A third advantage of using a smart card is that they can provide complete identification in certain industries. There are numerous benefits of using smart cards for identification. A driver's license that has been created using smart card technology can give the police the ability to quickly identify someone who has been stopped for speeding or reckless driving. These cards can be used by health professionals to identify someone who is brought in by an ambulance but unconscious or unable to speak.

#### **Prevents Fraud**

Other benefits of using smart cards for identification can be used by governments to prevent benefits and social welfare fraud to ensure the right person is receiving the welfare benefit. Some countries are using the smart cards to identify temporary workers who have been given work permits. This has the potential to reduce immigration fraud.

Smart cards are just as easy to use as a credit or debit card, but considerably more secure. They are lightweight and easy to carry. This makes it easy to have one card to pay for parking, access to the office, and for buying lunch at the office cafeteria.

### **Disadvantages of Smartcard:**

#### **Easily Lost**

Like a credit card, smart cards are small, lightweight and can be easily lost if the person is irresponsible. Unlike credit cards, smart cards can have multiple uses and so the loss may be much more inconvenient. If you lose a card that doubles as a debit card, bus pass and key to the office, you could be severely inconvenienced for a number of days.

#### **Security**

A second disadvantage of the using smart cards is their level of security. They are more secure than swipe cards. However, they are not as secure as some in the general public would believe. This creates a false sense of security and someone might not be as diligent as protecting their card and the details it holds.

#### **Slow Adoption**

If used as a payment card, not every store or restaurant will have the hardware necessary to use these cards. One of the reasons for this is since the technology is more secure, it is also more expensive to produce and use. Therefore, some stores may charge a basic minimum fee for using smart cards for payment, rather than cash.

#### **Possible Risk of Identify Theft**

When used correctly for identification purposes, they make the jobs of law enforcement and healthcare professionals easier. However, for criminals seeking a new identity, they are like gold, based on the amount of information it can contain on an individual.

### **5. E-Wallet:**

E-wallet is a type of *electronic* card which is used for transactions made online through a computer or a smartphone. Its utility is same as a credit or debit card. An *E-wallet* needs to be linked with the individual's bank account to make payments.

### **Advantages of E-Wallet:**

**Lower Costs:** Employing the use of digital wallets removes the need for intermediaries, in a variety of forms. Purchases in-store may no longer require a cashier because the purchasing process becomes as simple as a tap or scan of a mobile device. Applications like Square can replace expensive POS (point of sale) systems that will reduce transaction costs for the business.

**Competitive Advantage:** Digital wallet applications provide a more convenient transaction processing method for customers, giving businesses that employ this technology a competitive edge in the market. It redefines the user experience of paying and incorporates a novelty aspect to each purchase.

**Modern:** Traditional cash-only businesses, such as craft fairs and flea markets, can now accept debit and credit cards. This opens up an entirely new aspect to payment methods in large markets, introducing many business opportunities and greater potential revenue.

**Convenience:** Users are able to get through a purchase in mere seconds with a simple tap or scan of their mobile device. The experience of purchasing items becomes quicker and easier - leading to a greater sense of satisfaction. Furthermore, with faster transactions, checkout lines within stores become much shorter.

### **Disadvantages of E-Wallet:**

**Investment:** The initial monetary investment for building a functional digital wallet application is quite large. It requires the initial development of the software as well as the continual maintenance, updates and fixes associated with it. Upon acquiring software, the business would also need to install the corresponding hardware in their stores, which leads to a further increase in costs.

**Support Technology:** There are few supporting technologies to choose from at the moment, with NFC terminals and phone readers being the most prevalent. In the case of digital wallets, they can only function with a corresponding hardware device for each application. NFC terminals and specialize scanners are the only devices created at the moment that will support the processing of digital wallet payments; thus, it is very limited because the technology is still new.

**System Outages:** Information for digital wallets are stored on the cloud of business servers; therefore, the risk of a system malfunction or shut down is always present. As a result, businesses will not be able to process payments or they will become increasingly slow due to high traffic in the servers.

**Security:** Companies must ensure that their customers' information is encrypted and well protected. One of the biggest concerns of adopting a digital wallet application is "will my information be safe"? This is the hurdle that companies must face and as a result, must develop security systems that are as safe and full proof as possible to avoid potential security issues.

### **Electronic Fund Transfer**

It is a very popular electronic payment method to transfer money from one bank account to another bank account. Accounts can be in same bank or different bank. Fund transfer can be done using ATM (Automated Teller Machine) or using computer.

Now a day, internet based EFT is getting popularity. In this case, customer uses website provided by the bank. Customer logs in to the bank's website and registers another bank account. He/she then places a request to transfer certain amount to that account. Customer's bank transfers amount to other account if it is in same bank otherwise transfer request is forwarded to ACH (Automated Clearing House) to transfer amount to other account and amount is deducted from customer's account. Once amount is transferred to other account, customer is notified of the fund transfer by the bank.

### **Payment processing network:**

A payment processor is a company (often a third party) appointed by a merchant to handle transactions from various channels such as credit cards and debit cards for merchant acquiring banks. They are usually broken down into two types: front-end and back-end.

### **How online payment processing works? Explain.**

There are a series of steps involved with processing electronic payments such as credit and debit cards to pay telephone bill to Telephone Service Provider.

### **Step 1: User Initiates Online Payment**

The user goes online to pay telephone bill. After selecting to pay by credit or debit card, the user passes on information such as name, credit or debit card details, and billing address, and then submits payment.

### **Step 2: Telephone Service Provider to Payment Processor**

Telephone Service Provider sends the transaction details to our payment processor using a dedicated link that's monitored 24 x 7 x 365 to ensure that processing is not interrupted.

### **Step 3: Payment Processor to Card Networks to Card Issuing Bank**

Payment details are validated by the payment processor by sending them through the credit or debit card networks (Visa, MasterCard, American Express, Discover), which forward them to the card-issuing bank to be authorized.

### **Step 4: Card Issuing Bank**

The card-issuing bank approves/denies the transaction based on card status and whether the transaction is within the cardholder's credit limit or not.

### **Step 5: Payment Processor to Card Networks to Telephone Service Provider**

If payment gets approved, the card issuer charges the user and forwards the funds to the card networks less any fees to cover costs such as credit risk and rewards. The card networks then relay the transaction-approved status back to the payment processor, who notifies YapStone and sends on the funds less applicable fees.

### **Step 6: Telephone Service Provider to User**

Telephone Service Provider's lets the user know if the transaction is approved or denied through the online payment interface. If payment is denied, Telephone Service Provider's payment gateway notifies the site or app and because the card-issuing bank did not authorize the transaction, the process comes to a halt.

### **Step 7: Telephone Service Provider to Merchant**

At this point, Telephone Service Provider transfers funds from its bank account to the merchant's account. Funds are usually received within 1-2 business days. A receipt is then emailed to the user and payment receipt notifications go to the merchant.

Additionally, detailed Telephone Service Provider reports are updated in real-time, including the Transaction Activity Report, Batch Reconciliation Report and Transaction Summary Report.

### **Payment Gateway:**

A payment gateway is a merchant service provided by an e-commerce application service provider that authorizes credit card or direct payments processing for e-businesses, online retailers, bricks and clicks, or traditional brick and mortar.

### **Types of Payment Gateway:**

There are two major categories of payment gateways:

1. Hosted and
2. Shared Gateways.

#### **1. Hosted Payment Gateways:**

Hosted Payment Gateways are those that direct your user away from your ecommerce website. While making payments, the customer is redirected to the real gateway page by clicking the gateway link. This leaves your website for some time before returning back. The benefit of these gateways is that you do not need a Merchant ID since no confidential details are needed from your website. Examples here include PayPal, WorldPay and Nochex.

#### **2. Shared Payment Gateway:**

While making the payments, a customer is directed to the payment page and not out of your website. Here, a Post form is used once one clicks on a payment link/button. The payment page is maintained securely by the payment gateway. After all details about credit card and other required fields are complete, the user fully gets back to the main website. The main benefit is that one does not get away from your website thus fast and easy to use. Example of a gateway is eWay.

### **Advantages of Payment Gateway:**

- Security – Cardholder details are securely captured by your payment service provider (PSP).

- Simple – Your PSP takes care of all the set-up, so just concentrate on running your business successfully.
- Customisable – Your logo can be added to the payment page for custom reassurance.
- Easy to Customize - Control your checkout from start to finish, and make customer experience as of your website.
- Customer Experience – Shoppers never leave your website, giving them more confidence when completing a purchase.
- Flexibility – You have full control over what your payment page UI looks like.
- Customer Experience – Shoppers never leave your website, giving them more confidence when completing a purchase.
- Versatility – By using an API you can integrate your internet payment solution with any device connected to the internet (mobile phones, tablets, etc.).
- Simple - Good option for small business, who need one time payment options.
- No redirection to payment gateway.
- Improve buyer conversion: Improve conversion by displaying the pricing in the local currency of each shopper.
- Guaranteed rate: Merchants don't need to worry about fluctuations in exchange rates, it will be handles by payment solutions.

#### **Disadvantages of Payment Gateway:**

- Customer Experience - Cannot control the end-to-end experience.
- Security - Merchant has to take security measures to protect cardholder data.
- Service - Merchant may need to purchase SSL certification for better security.
- Advanced - It does not have some basic required features like refund and recurring payment.
- Generally does not provide the service ( for which you are paying) instantly.
- Require more technical efforts as multiple checking is required
- Customizable: Cannot control user experience as it's a separate platform.

# QUESTION BANK

## PART - A ( 1 MARKS QUESTIONS)

### CHAPTER-I - Choose any two from the following question bank)

1. In 1969 the Department of Defense of USA started a network called \_\_\_\_\_.  
(a) TELNET (b) APARNET (c) INTERNET (d) GOPHER (b)
2. Internet is a network of \_\_\_\_\_.  
(a) Networks (b) Computers (c) Servers (d) Workstations (a)
3. A computer accepts the connection initiated by the client and sends back a response is called \_\_\_\_\_.  
(a) File (b) Network (c) Server (d) Internet (c)
4. The last three letters of letter address for a professional organisation are \_\_\_\_\_.  
(a) .com (b) .edu (c) .org (d) .net (c)
5. The parts of a IP address is separated by \_\_\_\_\_.  
(a) Dots (b) Commas (c) Dollars (d) Equals (a)
6. \_\_\_\_\_ is a set of convention used to pass packets from one to another.  
(a) TCP (b) Internet Protocol (c) FTP (d) Gopher (b)
7. \_\_\_\_\_ is online textual conversation.  
(a) Chat (b) Video (c) GUI (d) (a)
8. A dedicated connection allows the users computer to remain connected to internet for \_\_\_\_\_ a day.  
(a) 12 hours (b) 8 hours (c) 24 hours (d) 6 hours (c)
9. \_\_\_\_\_ high speed phone lines that move data to and from mid-level servers. (Back bones)  
(a) Front end (b) Base line (c) Back end (d) Back bone (d)
10. \_\_\_\_\_ is used to convert analog signal into digital signal and vise-versa.  
(a) Modem (b) Router (c) Switch (d) Ethernet (a)
11. The communication protocol used by Internet is  
(a) HTTP (b) WWW (c) TCP/IP (d) HTML (c)
12. The process of copying file(s) from a remote computer on the Internet to your computer is known as  
(a) File using. (b) File uploading. (c) File downloading (d) None of the above. (c)
13. BPS stands for  
(a) Bytes per second. (b) Bits per second (c) Either a or b. (d) None of the above. (a)

14. Easy to access and view web pages, you need  
(a) Browser. (b) WWW. (c) TCP/IP (d) None of the above. (a)
15. Live communication on the Internet can be done using  
(a) E-mail (b) Newsgroups (c) IRC (d) None of the above. (b)
16. Department of Defense of USA started the \_\_\_\_\_  
(a) TelNet (b) APAR net (c) Internet (d) Gopher (b)
17. The last three letters of the address indicates about \_\_\_\_\_.  
(a) Kinds of organisation (b) Country code (c) User code (d) Server code (a)
18. \_\_\_\_\_ is the first hypertext document displayed when user follows a link to the web server.  
(a) Main page (b) Home page (c) Browser (d) None (b)
19. \_\_\_\_\_ is a group of computers connected to each other, for communicating and sharing resources.  
(a) Server (b) Network (c) Modem (d) None (b)
20. \_\_\_\_\_ is a standard set of rules to be followed by all computers wanting to talk to each other.  
(a) Protocol (b) Pre-code (c) Domain (d) None (a)

**CHAPTER - II - Choose any two from the following question bank**

1. \_\_\_\_\_ refers to exchange of commercial transactions over electronic media.  
(a) B2B (b) E-Commerce (c) Internet (d) www (b)
2. EDI stands for \_\_\_\_\_.  
(a) Electronic Data Interchange (b) Electronic Digit Interface (c) Electronic Dual Information (d) Element Data Information (a)
3. EFT stands for \_\_\_\_\_.  
(a) Electronic Flow (b) Electronic Feed (c) Electronic Funds Transfer (d) Electronic Funds (c)
4. B2C stands for \_\_\_\_\_.  
(a) Business To Con (b) Business to Clut (c) Business To Can (d) Business To Cor (a)
5. B2B stands for \_\_\_\_\_.  
(a) Business To Ben (b) Business To Bus (c) Business To Bru (d) Business To ben (b)
6. C2C stands for \_\_\_\_\_.  
(a) Customer To Co (b) Customer To Co (c) Customer To Cu (d) Customer To Compulsive (c)

7. B2G stands for \_\_\_\_\_.  
 (a) Business To glos (b) Business To Gov (c) Business To Goa (d) Business To Gai (b)
8. G2C stands for \_\_\_\_\_.  
 (a) Government To Competent (b) Government To Compulsive (c) Government To Customer (d) Government To Corruptible (c)
9. The concept of e-Commerce has been directly derived from ---.  
 (a) EDII (b) EDC (c) EDU (d) EDI (d)
10. Commercial Transaction done through electronic media is called \_\_\_\_\_.  
 (a) E-Transfer (b) E-Trade (c) E-Transaction (d) E-Tracking (c)
11. Which of the following describes e-commerce?  
 (a) Doing business electronically (b) Doing business (c) Sale of goods (d) All of the above (a)
12. Which of the following is part of the four main types for e-commerce?  
 (a) B2B (b) B2C (c) C2B (d) All of the above (d)
13. Which segment do eBay, Amazon.com belong?  
 (a) B2Bs (b) B2Cs (c) C2Bs (d) C2Cs (b)
14. Which type of e-commerce focuses on consumers dealing with each other?  
 (a) B2B (b) B2C (c) C2B (d) C2C (d)
15. Which segment is eBay an example?  
 (a) B2B (b) C2B (c) C2C (d) None (d)
16. Which type deals with auction?  
 (a) B2B (b) B2C (c) C2B (d) C2C (d)
17. Most individuals are familiar with which form of e-commerce?  
 (a) B2B (b) B2C (c) C2B (d) C2C (b)
18. Which form of e-commerce currently accounts for about 97% of all e-commerce revenues?  
 (a) B2B (b) B2C (c) C2B (d) C2C (a)
19. The best products to sell in B2C e-commerce are:  
 (a) Small products (b) Digital products (c) Specialty products (d) Fresh products (b)
20. Which type deals with auction?  
 (a) B2B (b) B2C (c) C2B (d) C2C

**CHAPTER-III - (Choose any two question from the following question bank)**

1. \_\_\_\_\_ is a place where the web pages reside.

- (a) Remote Server (b) Web server (c) Internal Server (d) External Server (b)
2. A \_\_\_\_\_ is a software used to locate and display web pages  
 (a) Web server (b) Web Link (c) Web site (d) Web browser (b)
3. \_\_\_\_\_ covers a limited number of computers with a building or campus.  
 (a) LAN (b) WAN (c) MAN (d) WAP (a)
4. \_\_\_\_\_ covers number of computers within a city or a suburban area.  
 (a) LAN (b) WAN (c) MAN (d) WAP (c)
5. \_\_\_\_\_ covers a wide geographical area like state or country.  
 (a) LAN (b) WAN (c) MAN (d) WAP (b)
6. Each computer connected to the Internet is known as a \_\_\_\_\_.  
 (a) Guest (b) Visitor (c) Caller (d) Host (d)
7. URL stands for \_\_\_\_\_.  
 (a) Unit Resource L (b) Union Resource (c) Universal Resot (d) Unit Reserve Lc (c)  
 Locator
8. On line textual talk is \_\_\_\_\_.  
 (a) Salience (b) chat (c) quiet (d) Host (b)
9. Exploring web on net is called \_\_\_\_\_.  
 (a) Guest (b) Visitor (c) Net (d) Net surfing (d)
10. \_\_\_\_\_ is used for the world online discussion.  
 (a) Gopher (b) Router (c) Usenet (d) Switch (c)
11. A \_\_\_\_\_ hardware device designed to receive, analyze and move incoming packets to another network.  
 ○ Switch ○ LAN cards ○ Router (d) Cable (c)
12. A \_\_\_\_\_ is a piece of a physical circuitry component that governs the signal flow.  
 (a) Switch (b) LAN cards (c) Router (d) Cable (a)
13. A \_\_\_\_\_ connects a computer to a network, whether local or foreign.  
 (a) Switch (b) LAN cards (c) Router (d) Cable (c)
14. A \_\_\_\_\_ is one or more wires covered in a plastic covering that connects a computer to a power source or other device.  
 (a) Switch (b) LAN cards (c) Router (d) Cable (d)
15. A \_\_\_\_\_ is a network security device that monitors incoming and outgoing network traffic.  
 (a) Firewall (b) LAN cards (c) Router (d) Cable (a)

16. \_\_\_\_\_ is a very effective and practical way to safeguard the data being transmitted over the network.  
 (a) Digital Signature (b) Encryption (c) Antivirus (d) Firewall (b)
17. Digital signature ensures the authenticity of the information.  
 (a) Digital Signature (b) Encryption (c) Antivirus (d) Firewall (a)
18. Which process can prevent data from lose due to computer problems or human errors?  
 (a) backup (b) recovery (c) benchmarking (d) data cleansing (b)
19. What software detects and removes or quarantines computer viruses?  
 (a) Digital Signature (b) Encryption (c) Antivirus (d) Firewall (c)
20. Which of the following is a useful security mechanism when considering business strategy and IT?  
 (a) Digital Signature (b) Encryption (c) Antivirus (d) Firewall (d)

**CHAPTER-IV - (Choose any two question from the following question bank)**

1. In EDI, data is \_\_\_\_\_.  
 (a) unstructured (b) formless (c) structured (d) shapeless (c)
2. Automated Clearing House is one of the \_\_\_\_\_ EDI.  
 (a) Financial (b) Nonmonetary (c) Nonfinancial (d) Non-fiscal (a)
3. \_\_\_\_\_ is an electronic transfer of funds between banks. (EFT)  
 (a) EFTE (b) EFT (c) EFC (d) EFD (b)
4. \_\_\_\_\_ EDI helps in quick claim of insurance and medical care. (Health care)  
 (a) EFTE (b) EFT (c) EFC (d) EFD (b)
5. \_\_\_\_\_ is a special signature for signing electronic correspondence. (Digital signature)  
 (a) Digital Signature (b) Sign (c) Biometrics (d) Cypher (a)
6. \_\_\_\_\_ comprises the electronic transmission of payments and remittance information between a payer, payee, and their respective banks.  
 (a) Trade EDI (b) Manufacturing EDI (c) Financial EDI (d) Internet EDI (c)
7. \_\_\_\_\_ is providing good & affordable health care. (Health care EDI)  
 (a) Trade EDI (b) Health care EDI (c) Financial EDI (d) Internet EDI (b)
8. \_\_\_\_\_ are instruments for debit transfers where payees collect funds from payers. (Checks)  
 (a) Checks (b) Drafts (c) Slips (d) Forms (a)

9. \_\_\_\_\_ is simply a communications pathway, where EDI data is passed between trading partners using Internet protocols.

- (a) Trade EDI (b) Health care EDI (c) Financial EDI (d) Internet EDI (d)

10. \_\_\_\_\_ is used to support just-in-time.

- (a) Trade EDI (b) Manufacturing EDI (c) Financial EDI (d) Internet EDI (b)

11. In EDI, the data is \_\_\_\_\_.

- (a) Structured (b) Unstructured (c) Unique (d) None (a)

12. In Email, the data is \_\_\_\_\_.

- (a) Structured (b) Not structured (c) Unique (d) None (b)

13. EDI has \_\_\_\_\_.

- (a) No legal status (b) legal status (c) None (d) None (b)

14. Email has \_\_\_\_\_.

- (a) No legal status (b) legal status (c) an evidence (d) None (a)

15. Human intervention is \_\_\_\_\_ to process the information.

- (a) Needed (b) exercised (c) not needed (d) not exercised (c)

16. EDI standard

- (a) is not easily available  
(b) defines several hundred transaction sets for various business forms  
(c) is not popular  
(d) defines only a transmission protocol (b)

17. EDI use

- (a) requires an extranet  
(b) requires value added network  
(c) can be done on internet  
(d) requires a corporate intranet (c)

18. EDI over internet uses

- (a) MIME to attach EDI forms to e-mail messages  
(b) FTP to send business forms  
(c) HTTP to send business forms  
(d) SGML to send business forms (c)

19. Electronic Data Interchange is necessary in

- (a) B2C e-Commerce  
(b) C2C e-Commerce  
(c) B2B e-Commerce  
(d) Commerce using internet (c)

20. EDI requires

- (a) representation of common business documents in computer readable forms
- (b) data entry operators by receivers
- (c) special value added networks
- (d) special hardware at co-operating Business premises (a)

**CHAPTER-V - (Choose any two question from the following question bank)**

1. Electronic cash is also called as \_\_\_\_\_,  
(a) digital cash (b) real cash (c) e-wallet (d) paytm (a)
2. \_\_\_\_\_ is a software used to handle information of e-cash & credit card. (Electronic Wallet)  
(a) digital cash (b) Electronic Wallet (c) Mobile cash (d) paytm (b)
3. \_\_\_\_\_ card is used for on line payment that removes the amount from the card holder's bank account. (Debit)  
(a) paytm (b) smart (c) credit (d) debit (d)
4. \_\_\_\_\_ card is used for online credit purchases.  
(a) paytm (b) smart (c) credit (d) debit (c)
5. \_\_\_\_\_ card is a stored value card.  
(a) paytm (b) smart (c) credit (d) debit (b)
6. A payment \_\_\_\_\_ is a merchant service provided by an e-commerce application service provider that authorizes credit card or direct payments.  
(a) card (b) gateway (c) path (d) track (b)
7. \_\_\_\_\_ is a system of transferring money from one bank account directly to another without any paper money changing hands.  
(a) digital cash (b) Electronic Wallet (c) Mobile cash (d) Electronic Funds Trar (d)
8. \_\_\_\_\_ is a type of *electronic* card which is used for transactions made online through a computer or a smartphone.  
(a) *E-wallet* (b) Smart Wallet (c) Mobile cash (d) paytm (a)
9. Money that is exchanged electronically over computer or telecommunications networks means \_\_\_\_\_.  
(a) *E-wallet* (b) Smart Wallet (c) E-cash (d) paytm (c)
10. ATM means \_\_\_\_\_.  
(a) *Automated Tell A* (b) Automated Teller Mach (c) Automated Talk Mac (d) Automated Teller M (b)
11. Credit cards used in a \_\_\_\_\_ retail application are recorded on a transaction slip and verified by the use of a signature.  
(a) Conventional (b) electronical (c) traditional (d) None (a)
12. A \_\_\_\_\_ is used to authenticate the sender of the message and to check that the

- the integrity of the message.  
 (a) Email (b) digital signature (c) EDI (d) None (b)
13. The online equivalent of a stored value card is \_\_\_\_\_.  
 (a) e-pay (b) e-cash (c) e-credit (d) None (b)
14. Expenses on processing of a \_\_\_\_\_ is levied by vendor.  
 (a) Credit card transaction (b) Net banking (c) Online e-cash (d) None (a)
15. Stored value cards can be used for \_\_\_\_\_.  
 (a) Conventional commerce (b) buying (c) e-commerce (d) None (c)
16. What are plastic cards the size of a credit card that contains an embedded chip on which digital information can be stored?  
 (a) Customer relationship management systems cards  
 (b) E-government identity cards  
 (c) FEDI cards  
 (d) Smart cards (d)
17. Smart card is better protected than other cards using  
 (a) Encryption  
 (b) Firewall  
 (c) Hub  
 (d) All the above (a)
18. The presence of ----- make the smart card smart.  
 (a) Memory  
 (b) Microchip  
 (c) E-cash  
 (d) None of the above (b)
19. Which one is not an online payment mode?  
 (a) Cash on delivery  
 (b) Debit card  
 (c) Credit card  
 (d) e-cheque (a)
20. OTP stands for  
 (a) On Time Password  
 (b) On Time processing  
 (c) One time processor  
 (d) None (a)

**PART - B (2 MARKS QUESTIONS) (5 X 2= 10 Marks)**

**CHAPTER - I - (Choose any TWO from the following question bank)**

1. What is Internet?
2. Explain the term Modem.
3. Explain the term Gateway.

4. What is known as Router?
5. Write Short notes on WWW.
6. Explain the term Browser.
7. Explain the term Hypertext.
8. What is called Web Portal ?
9. What is known as Web Address?
10. What is known as Web page?

**CHAPTER - II - (Choose any TWO from the following question bank)**

1. What is e-Commerce ?
2. What is known as B2B ?
3. What is known as B2G ?
4. Explain the term e-banking.
5. Write short notes on e-transaction.
6. What is known as C2C ?
7. Briefly narrate the origin of e-commerce.
8. Write short notes on "e-business".
9. Write any two benefits of e-commerce.
10. Write any two objects of e-commerce.

**CHAPTER - III - (Choose any ONE from the following question bank)**

1. What is LAN?
2. What is MAN?
3. What is WAN?
4. What is VWAN?
5. What is protocol?
6. What is TCP/IP?
7. What is FTP?
8. What is HTTP?
9. What is HTML?
10. What is Encryption?

**CHAPTER - IV - (Choose any ONE from the following question bank)**

1. What is EDI?
2. Write any two uses of EDI.
3. What are the differences between EDI and Email?
4. What is Electronic Funds Transfer (EFT)?
5. What is Automated Clearing House (ACH)?
6. What is Health Care and Insurance EDI?
7. What is Manufacturing and Retail Procurement using EDI?
8. What is Business Information EDI?
9. What is Digital Signature?
10. What is Internet based EDI?

**CHAPTER - V - (Choose any ONE from the following question bank)**

1. What is online payment system?
2. What is Electronic Cash?
3. What is Electronic Wallet?
4. What is a Smart Card?
5. What is a Credit Card?
6. What is a Charge Card?

7. What is a Debit Card?
8. What is a NetCheque?
9. What is a NetBill?
10. What is a Mondex?

**PART - C (5 MARKS QUESTIONS) - EITHER OR TYPE  
(5 X 5= 25 Marks)**

**CHAPTER - I - (Choose any two from the following question bank)**

1. What are the advantages of the Internet?
2. Explain the functionality of the Internet?
3. What are the types of accessing the Internet? Explain.
4. What are the differences between IP accounts and Shell accounts?
5. Differentiate between Dial up access and Dedicated access.
6. Differentiate between Domain name and IP address.
7. Write Short notes on (a) Dial up access (b) Dedicated access
8. Write short notes on (a) Domain name (b) IP Address
9. Why are domain names required? Explain.
10. Write Short notes on (a) NewsGroups (b) FTP

**CHAPTER - II - (Choose any two from the following question bank)**

1. What are the advantages of WWW ?
2. What are the useful services on WWW ?
3. What are the common terminologies related to WWW ?
4. What are the different types of Web Browsers ?
5. Write short notes on (a) Browser (b) Netscape Navigator
6. Write short notes on (a) Home page (b) HTTP
7. What are the features of Internet Explorer ?
8. Write short notes on (a) Web server (b) Home page

**CHAPTER - III - (Choose any two from the following question bank)**

1. What are the benefits of e-commerce?
2. What are the various useful services available in e-commerce?
3. Write about e-commerce - present status in India.
4. What are the differences between traditional commerce and e-commerce ?
5. What are the disadvantages of e-commerce?
6. What are the objectives of e-commerce?
7. What are the functions of e-commerce?
8. Write short notes on (a) B2B (b) C2C (c) B2G

**CHAPTER - IV - (Choose any two from the following question bank)**

1. Explain the Architecture of EDI.
2. What are the differences between EDI and E-mail ?
3. What are the uses of EDI?
4. What are the advantages of EDI?
5. What are the types of EDI?
6. What are the types of Financial EDI?
7. What is Internet EDI? What are its advantages?
8. Explain EDI-Legal, Security and Privacy Issues?

**CHAPTER - V - (Choose any two from the following question bank)**

1. Explain e-Cash. What are its uses?

2. Explain e-Wallet. What are its uses?
  3. Describe the uses of Smart Cards.
  4. What are the advantages of Debit card?
  5. What are uses of Stored Value Cards?
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## **PART - D ( 10 MARKS QUESTIONS)**

### **CHAPTER - I - (Choose any one from the following question bank)**

1. What are the different types of domain names? Explain each with an example.
2. Describe the various facilities on the INTERNET.
3. Narrate the different applications of the INTERNET.
4. What are the various Internet Terminologies? Explain them.
5. What are the various Information Retrieval tools? Explain them.
6. What are the various applications available on WWW?
7. Explain the different types of Web Browsers?

### **CHAPTER - II - (Choose any one from the following question bank)**

1. What are the merits and demerits of e-commerce?
2. What are the different types of e-commerce? Explain.
3. Narrate the development of e-commerce in India.
4. Write short notes on (a) e-banking (b) e-buying (c) e-transaction (d) e-selling
5. Explain the following functions of e-commerce.  
(a) Communications (b) Process management  
(c) Service management (d) Transaction capabilities

### **CHAPTER – III - (Choose any one from the following question bank)**

1. What are the types of Network? Explain in detail.
2. How information is distributed on the internet? Explain.
3. Why is the Internet vulnerable to hackers? Describe various sources of vulnerabilities.
4. What is meant by security policy? Distinguish it from security procedures.
5. Explain the E-Commerce information publishing technology.

### **CHAPTER – IV - (Choose any one from the following question bank)**

1. What are the advantages and disadvantages of EDI?
2. What are the EDI Applications in Business? Explain.
3. Describe the different types of Internet EDI.
4. What is e-Cash? What are the advantages and disadvantages of e-Cash?
5. What are the applications of EDI? Explain.

### **CHAPTER –V - (Choose any one from the following question bank)**

1. What is payment processing network? How online payment processing works? Explain.
  2. What is payment gateway? What are the types of payment gateway? What are its benefits?
  3. What are credit cards? What are the procedures for carrying credit card transaction?
  4. What are smart cards? What are the various applications of smart cards?
  5. What is electronic payment system? What are the different types of electronic payment system?
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