

## UNIT - 1

### Introduction to E-Commerce.

- \* E-Commerce :- E-commerce refer to all forms of transaction related to commercial activity involving both organisations and individuals that are based upon the processing and transmission of data, text, sound and images.
- Or in other words E-commerce is used to mean all business operations and transactions that are performed through the internet and other electronic technologies.

### Features of Electronic-Commerce. -

- 1- Global-reach - E-commerce technology permits commercial transactions to cross cultural and national boundaries of the earth surface.
- 2- Universal Standard - The technical standard for E-commerce is internet therefore the universal standard is lies upon the E-commerce.
- 3- Interactivity - Interactivity means that E-commerce allows for two-way communication between merchant and consumer.
- 4- Information density and richness - The internet increases information density and also increase the quality of information available to all market, participants, consumer and merchants.

5- Personalisation — E-Commerce technologies allow personalisation so the merchant can target their market message to specific individuals.

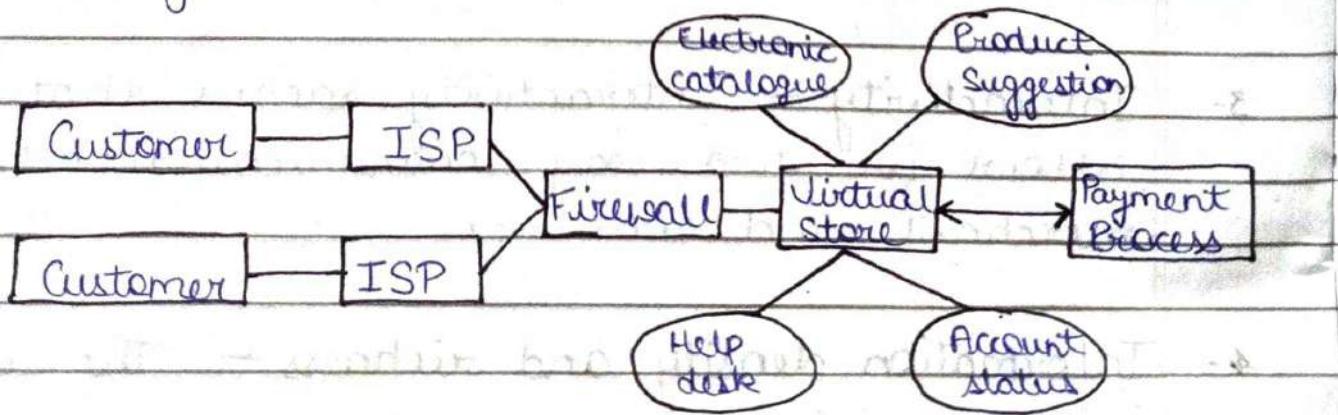
6- Availability — E-Commerce allows the feature of availability for consumer end and also merchant end at everywhere and all time.

### \* Types of E-Commerce :-

There are several types of E-Commerce models

1. Business to Consumer (B2C)
2. Business to Business (B2B)
3. Consumer to Consumer (C2C)
4. Consumer to Business (C2B)
5. Business to Employee (B2E)
6. Business to Government (B2G)

1- Business to Consumer (B2C) — (In Business to Consumer, businesses sell directly a group of products and services to consumer.) In these cases E-commerce provides the traditional commerce by offering products and services through electronic channel.

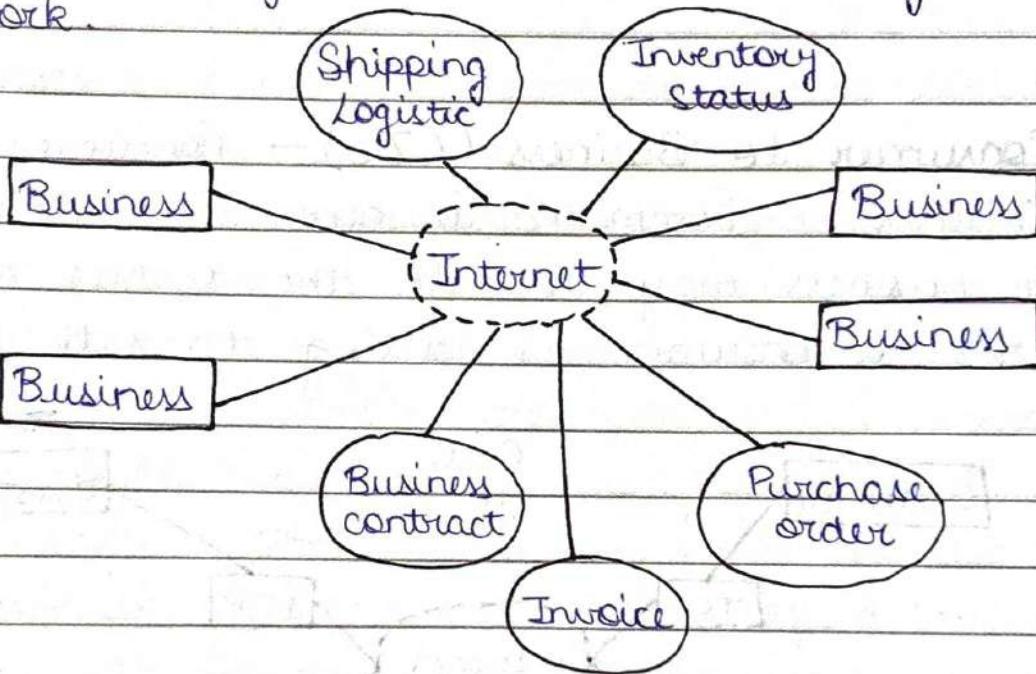


ISP - Internet Service Provider

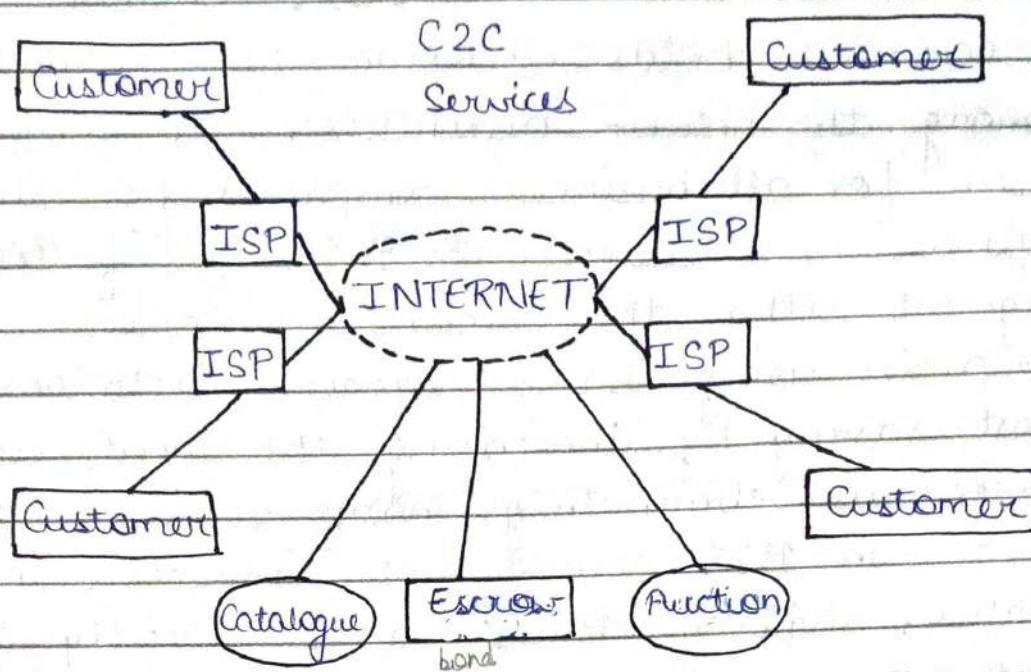
2- Business to Business (B2B) :- Business to business E-commerce holds electronic transactions between among the between businesses. The internet are used for all businesses companies for supplies, utilities and services. B2B is the fastest growing segment within the e-commerce environment.

Companies using B2B E-commerce relationships observes cost saving by increasing the speed, reducing error and eliminating many manual activities.

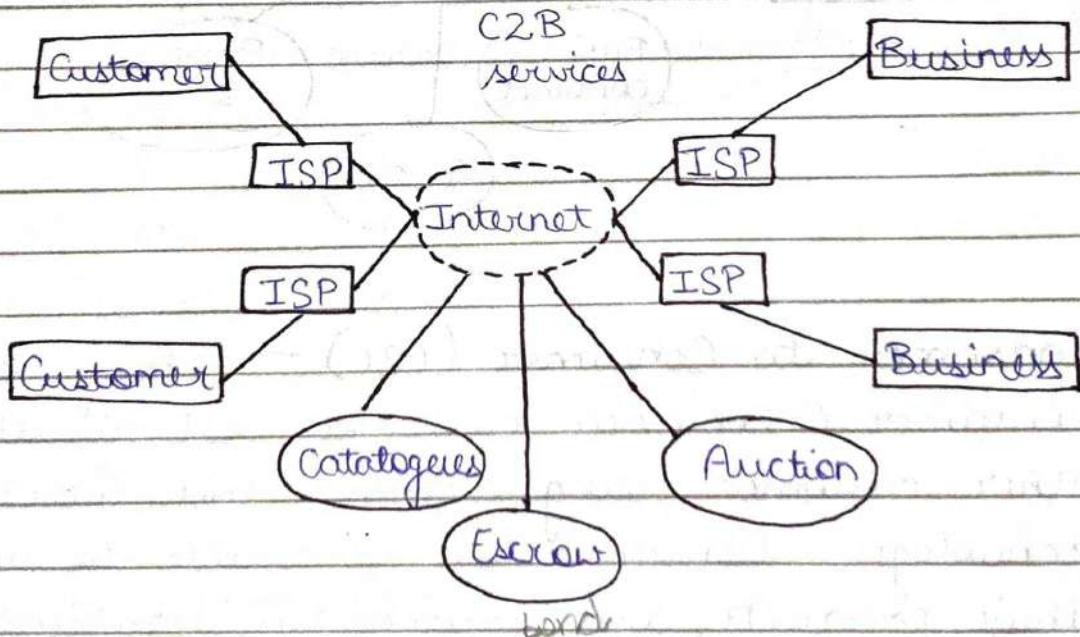
In B2B environment, invoices, inventory status, shipping status handles directly through the network.



3- Consumer to Consumer (C2C) — Using consumer to consumer E-commerce customers sell directly to other customer using internet and another web technologies. Consumer are also able to advertise their products and services in organisational and sell them to other employees.



4- Consumer to Business (C2B) – Consumer to Business E-commerce involves individuals setting up business may include the service or product that a consumer is willing to sell.



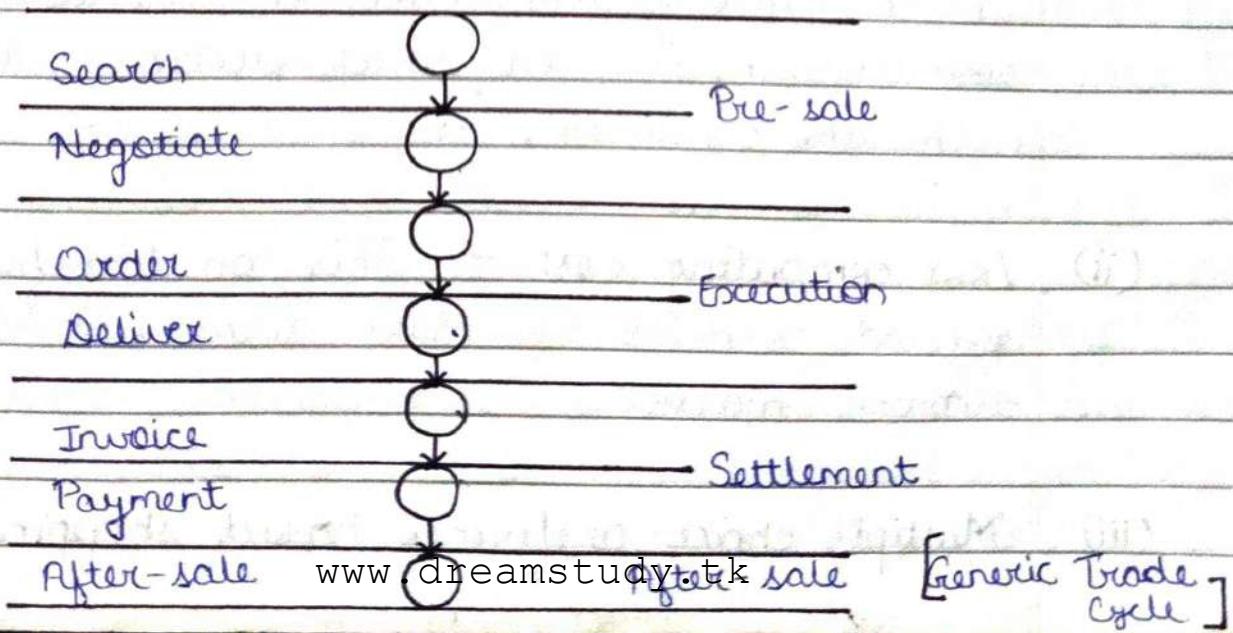
5- Business to Employee (B2E) – The transaction between the business and the employee are called Business to employee services.

6- Business to Government (B2G) — A transaction between the business and government over electronic network are called business to government.

\* E-Commerce Trade Cycle :- A trade cycle is the series of exchanges between a customer and supplier. This cycle can take place when a commercial exchange is executed.

A general trade cycle consist of the following stages —

- 1- Pre-sales — Finding a supplier and agree the terms and condition.
- 2- Execution — Having decided to do business with the buyer and request the order from the vendor.
- 3- Settlement — At an appropriate stage, the vendor ask for payment, invoice then the buyer makes the appropriate payment.
- 4- After-sales — Once the sale is completed, that is not necessary the end of the story depending on the nature of exchange there may be a requirement for after sales activity.



\* Scope of E-Commerce :- Scope of E-Commerce is divided into three area -

- 1- Electronic market
- 2- Electronic data interchange (EDI)
- 3- Internet commerce

1- Electronic market - An electronic market is a market where change of economic product is coordinated through the electronic exchange of data.) An electronic market is the use of information and communication technology to present a range of product that are available in the market segment so that the consumer can compare the prices and other attributes to make a purchase decision.

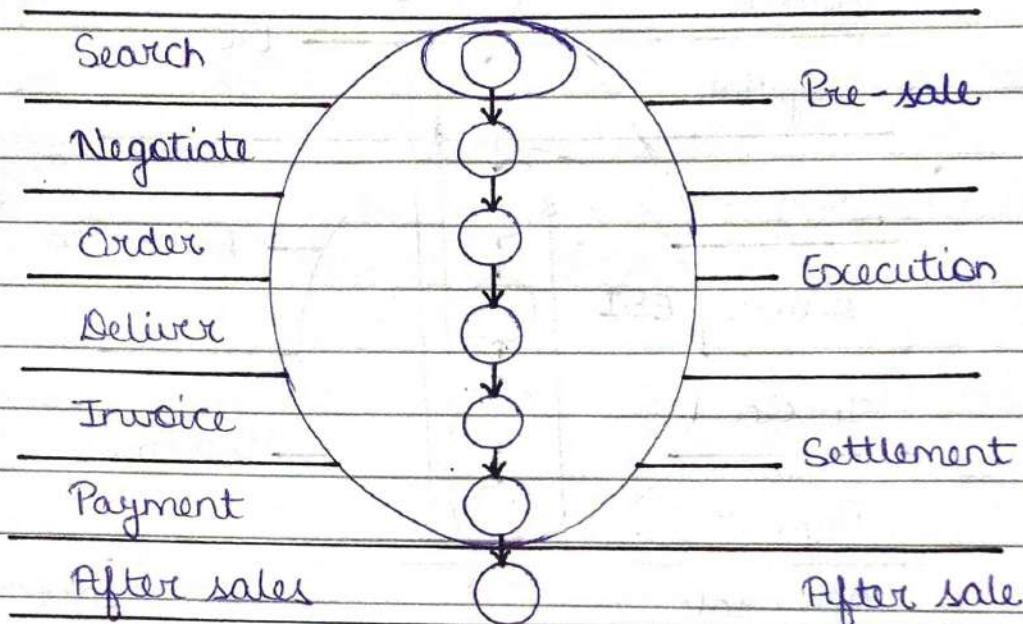
For example - Airlines Booking System

Electronic markets are the more efficient form of coordination for certain classes of product transactions. Electronic markets are used due to following reasons-

- (i) Lower coordination cost - Electronically linked retailers are able to lower their cost by reducing intermediary transactions and unnecessary coordination due to direct electronic transactions with the consumer.
- (ii) Low computing cost - This can transform and expand product to make them suitable for the electronic market.
- (iii) Multiple choice preference based shopping - Traditional

single source sales channels involving into linked database through electronic data interchange.

- (iv) Trade off in market participation - Electronic market passes on the savings occurred from improved coordination cost and sell at a discount compared to traditional markets.
- (v) Minimized delivery cost - Delivery cost are minimized.



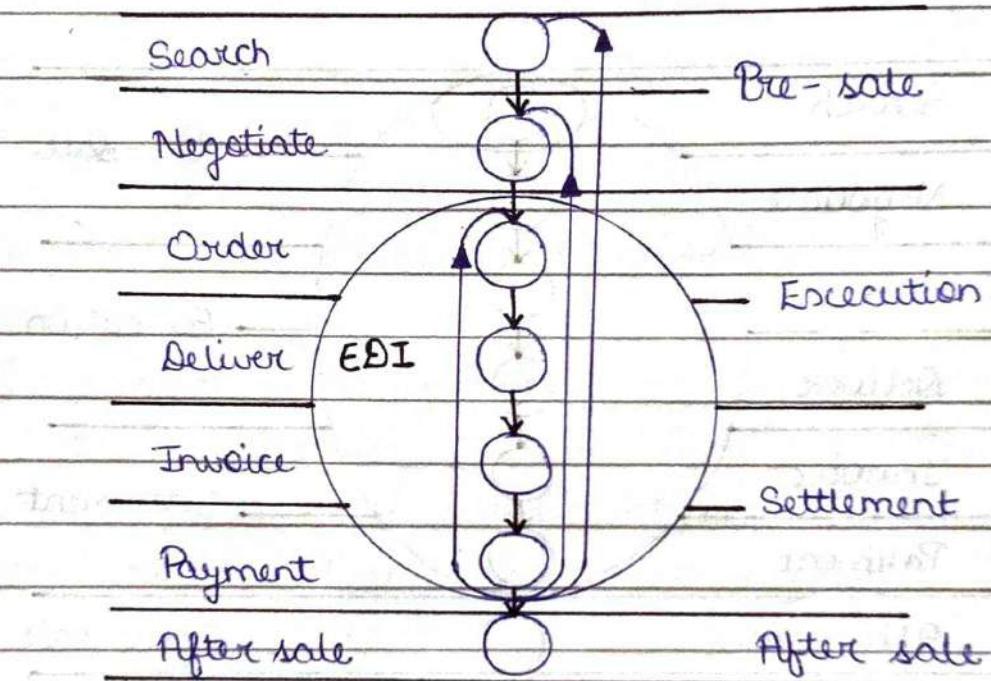
### Electronic Markets and Trade Cycle

- 2- Electronic Data Interchange - Electronic data interchange provide a standard system for trade transactions so that they can be communicated directly from one computer system to another without the need for printed order and invoices.

Electronic data interchange is used by organisations that make a large number of regular transactions. Electronic data interchange has been implemented in many organisations in order to

further increase efficiency and increase profits.  
Electronic data interchange provides the following benefits -

- (i) Improved inventory management
- (ii) Improved accuracy
- (iii) Minimize paper usage and storage
- (iv) Reduce cycle times and cost



### EDI and Trade Cycle

3- Internet Commerce — Internet commerce means the use of the global internet for purchase and sale of goods, services. Internet commerce brings some new technologies and new capabilities to business.

Information and communication technologies can also be used to advertise and make sales of a wide range of goods and services. This type of E-commerce is identified by the commercial use of internet.

- **Advantage of E-Commerce** - The advantage of e-commerce can be combined with following categories -
  1. Advantage to customer - Reduce prices
  2. Global market
  3. Twenty-four hours
  4. Quick delivery
- 1- **Advantage to customer -**
  - Increase market share
  - Low cost advertise
  - Global reach
  - Low barriers to entries
- **Disadvantage of E-Commerce -**

It is divided into two categories -

  - 1- **Technical limitation -**
    - ✓ Lack of security
    - Low Bandwidth
    - Needed two application tool
    - ✓ Compatibility
  - 2- **Non-technical limitation -**
    - Cause and justification
    - ✓ Security and privacy
    - ✓ Lack of trust
    - ✓ Customer relation problem
    - ✓ Legal issues

## \* Difference between E-Commerce and Traditional Commerce-

### Traditional Commerce

- 1- In traditional commerce, the cost has to be vary for different person.
- 2- It takes a lot of time to complete a transaction.
- 3- It is not easy to expand business.
- 4- It is possible to physically inspect the goods before the purchase.
- 5- Business is open only for a limited time.
- 6- The business relationship in traditional commerce is vertical or linear.
- 7- The interaction between business and customer is face to face.
- 8- Customer can directly visit the shop for purchase of product.

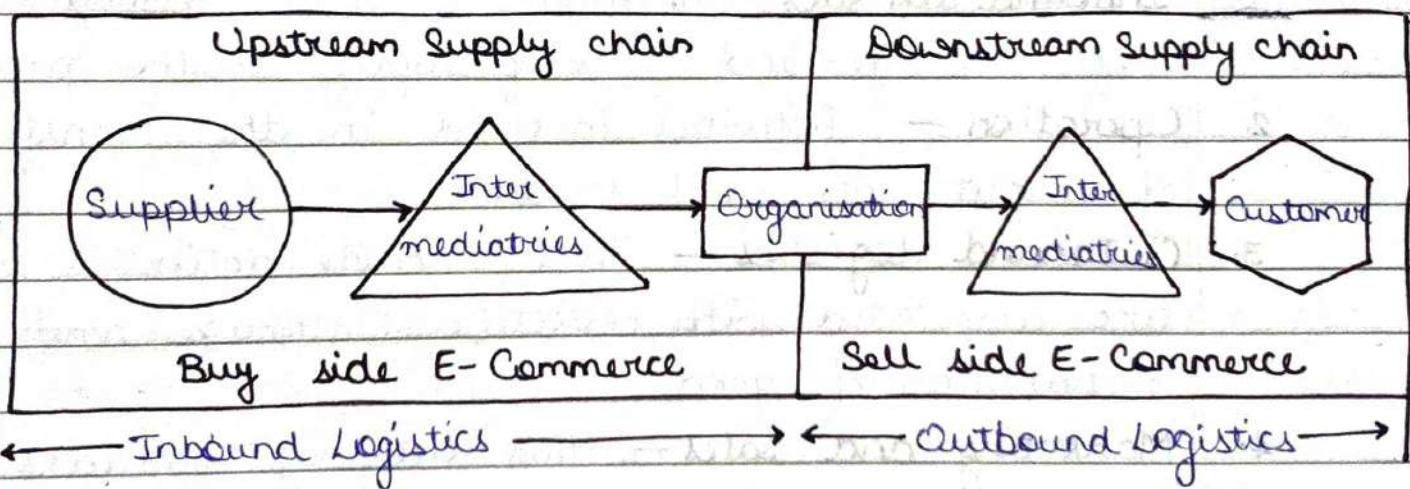
### E-Commerce

- In e-commerce, the cost is very effective.
- It save a lot of <sup>valuable</sup> time of for both customer and business firm.
- It is easy to expand the business.
- E-Comm. does not allow physical inspection of goods while purchasing.
- 24 X 7 service is available.
- In E-commerce, the business relationship is end to end.
- In E-Commerce, the interaction between business and customer is screen to face.
- In E-commerce, consumer can browse the respective website and order the product.

Supply chain :- Supply chain is the combination of all activities with the flow and transformation of goods from the raw material stage, <sup>to delivery of goods</sup> through to the end user as well as the associated information flow.

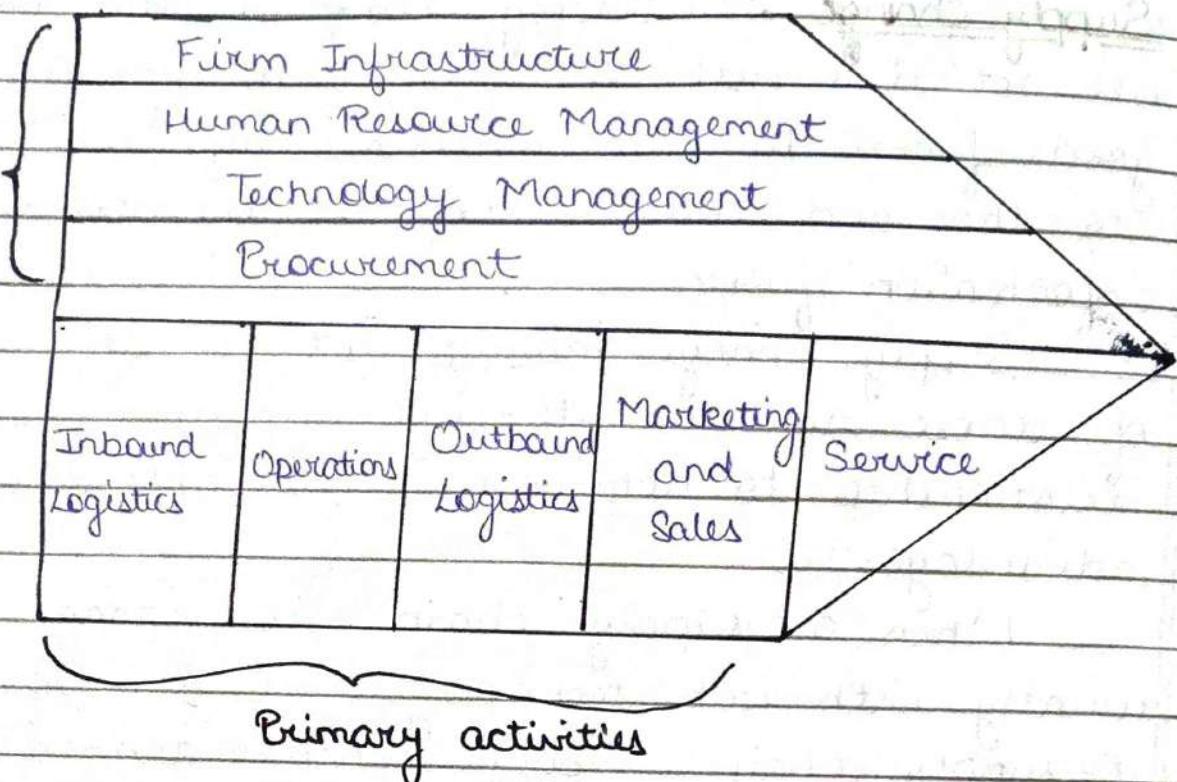
Supply chain management is the integration of those activities through improve supply chain relationship to achieve a sustainable competitive advantage.

When a supply chain is manage electronically, usually with web technologies it is referred to E-supply chain. Supply chain management involve the coordination of all supply activities of an organisation, from its supplier and delivery of product to its customer.



\* Porter's value chain model :- In this model, the value chain or supply chain model is divided for describing the flow of value from <sup>user</sup> producer to consumer. This model also indicates that there are many points of intermediation along the value chain model.

Support activities



- Primary activities - Primary activities are divided into five categories -

1. Inbound logistics - These are activities associated with stock storage and flow of input to the product.
2. Operation - Activities involved in the transformation of input into final product.
3. Outbound logistics - These include activities which are associated with collection, storage and physical distribution of goods.
4. Marketing and sales - This category includes activities such as advertising, sales promotion.
5. Service - These are the activities of providing service to enhance or maintain the value of product like installation, repair or supply of the part of the product.

- Support activities - Support activities are divided into four categories -
  1. Procurement - Procurement activities which include purchase of material and service input, equipment etc.
  2. Technology development - Technology involved in product design and manufacturing process is to be performed for perfection and upgradation.
  3. Human resource management - Management of human resource is recruitment, training and development of man power.
  4. Firm infrastructure - Those activities that provide the infrastructure for the firm. They related to general management, accounting and finance, legal affairs etc.

\* Business Strategy :- A business strategy is a set of plan for achieving long term return on the capital invested in the business firm. There are four generic strategies for achieving a profitable business -

1. Differentiation
2. Cost
3. Scope
4. Focus

\* E-Commerce strategy input— Traditionally an IT strategy would be dependent to the business strategy for e-commerce, the IT strategy becomes a central component in business strategy.

E-commerce strategy inputs to an e-commerce business strategy are—

1. Technology
2. Business capability
3. Business environment
4. Existing business strategy

1- Technology — An e-commerce technology includes—

- (i) Supply logistics and facilitate decrease in trade cycle time.
- (ii) Redefine the operation of a market sector.
- (iii) Provide new direct sales opportunity and B2B, B2C applications.

2- Business environment — All business operate within an external environment. They can influence that environment but their activities are also enabled or constraint by that environment. There are some environmental factors who developing a business strategy, these are—

- (a) Economy — The economy in general and it affect the relevant market sector in strategy formulation
- (b) State — The state influences the economy and set the regulatory framework within business operate. E-commerce is generally seen as a positive

development by governments and there can be initiated to assist companies in its adoption.

(c) Labour - The labour market will determine if an organisation can get the people and skills it needs for its operation.

For e-commerce the availability of people with the technical skills can be an issue.

(d) Culture - Culture varies in different countries and an appropriate way to operate in one country would not necessarily be successful in another.

3- Business Capability - There are following business capability of e-commerce -

(a) Improved productivity

(b) Cost Saving

(c) Stream line business process - Use of internet and with automation of business process can make business more efficient

(d) Better Customer Service

(e) Opportunities for new business - Business over the internet have global customer reach. There are endless possibilities for business to expand their customer base.

4- Existing Business Strategy - Very possibly the organisation already has a business strategy and this can be part of evaluation of e-commerce strategy.

Some examples of e-commerce strategy could affect business strategy might be -

- (a) A decision to close down retail outlets and serve customers online.
- (b) Expansion into new geographical markets where the company did not operate.
- (c) A move from selling through local agents to selling direct.

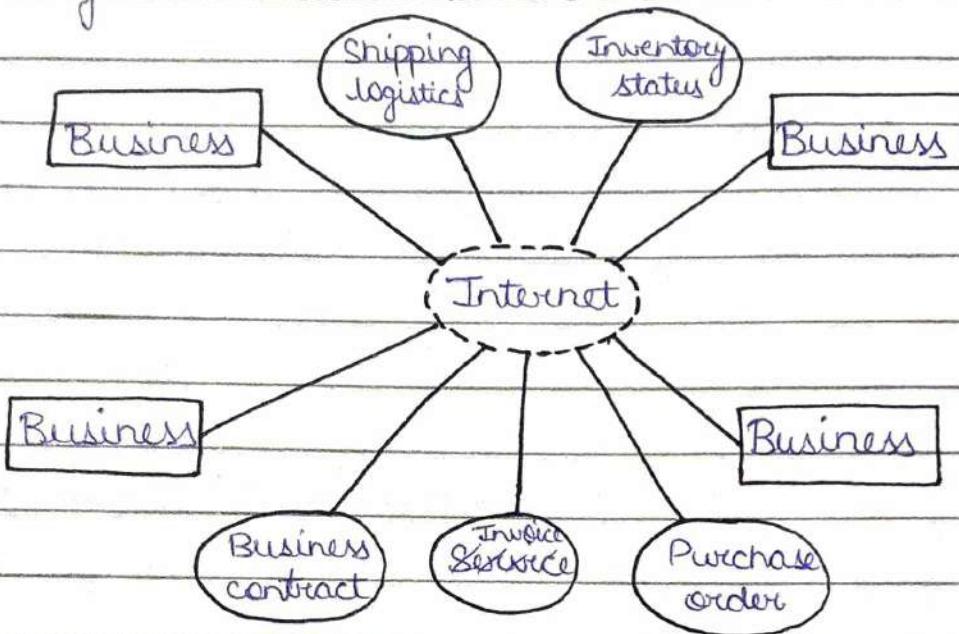
In all cases, where e-commerce is seen as a strategic system, the business strategy will be modified or re-shaped by the adoption of the e-commerce strategy making the business strategy more efficient.

\* **E-Commerce Implementation**:- The implementation of e-commerce is divided into two categories -

- 1- **Technical implementation** - The approach to technical implementation of an e-commerce system depends on the -
  - (i) Business objective
  - (ii) Business requirement
  - (iii) Technology
- 2- **Business implementation** - To build up an e-commerce shop the organisation needs to -
  - i) Put in place the business infrastructure to support the new e-commerce facility.
  - (ii) Market to the new e-commerce facility is to the intended user.

UNIT - 2Business To Business E-Commerce

Business to business e-commerce holds transaction among its between businesses.



- Characteristics of B2B E-Commerce :-

1- Parties of the transaction:- B2B e-commerce can be conducted directly between the buyer and seller through an online intermediary channel. The intermediary channel is an online third party that broke the transaction between the buyer and the seller.

\*2- Types of transactions:-

i) Spot buying - It refers to the purchasing of goods and services as they are needed usually at the market price which are determined dynamically depend on the supply or demand.

For example - oil, sugar etc.

(ii) Strategic sourcing - This involve purchases bases on long term contracts. Strategic purchases can be supported more effectively and efficiently through direct buyer seller online negotiation.

### 3- Types of material :-

- (i) Direct material - These materials are materials used in making the products such as - steel for a car and paper for a book.
- (ii) Indirect material - These are items such as - office supplies or light bulb that support production. They are usually used in maintenance, repair and operation activities.

### 4- Direction of trade :-

- (i) Vertical market place - They deals with one or more industry segment.
- (ii) Horizontal market place - These market place concentrate on a service or a product that is used in all types of industries.

### \* Models of B2B E-Commerce :-

B2B e-commerce models are determined by seller, buyer and third party who controls the market place.

There are four models of B2B e-commerce -

1. Seller oriented Marketplace.
2. Buyer - oriented Marketplace
3. Third party exchange Marketplace
4. Trading partners agreements

1- Seller-oriented marketplace — This is the most popular type of B2B model for both consumer and businesses. In this model, the sellers who have fragmented markets come together to generate a common market place for the buyer.

In the sell side marketplace model, organisations attempt to sell their products or services to other organisations electronically. This model is similar to B2C model in which the buyer is expected to come to seller's site, view catalogues and place an order.

2- Buyer-oriented marketplace — This model is used by large companies with satisfy buying power of several small companies. In this model, a buyer or group of buyers open an electronic marketplace and invites seller to bid on the announced product or request for quotation.

3- Third party exchange marketplace — A third party marketplace model is controlled by a third party not by a buyer or seller. A third party marketplace model offers for supplier to giving direct channel of communication to buyer through online or internet.

The inter-active procedures within the marketplace contains features like - product catalogue

request for information, broker contacts, product sample request.

- 4- Trading partners agreement - The main objective of trading partner agreement B2B business model are to (automate the process for negotiating) and enforcing contracts between participating businesses.  
This relatively new model is gaining popularity.

### \* Benefits of B2B E-Commerce :-

- 1- 24 X 7 X 365
  - 2- Breaking geographical barriers
  - 3- Online tenders
  - 4- Lower cost
  - 5- Perfect competition
  - 6- Eliminating weak middle-man
- ✓ Reduced errors
  - ✓ Reduced cycle time

### Purchasing

### \* Procurement Management :-

A procurement management is a process by which items are purchased from external suppliers. The procurement management process involves managing the order, receipt, review and approval of items from suppliers.

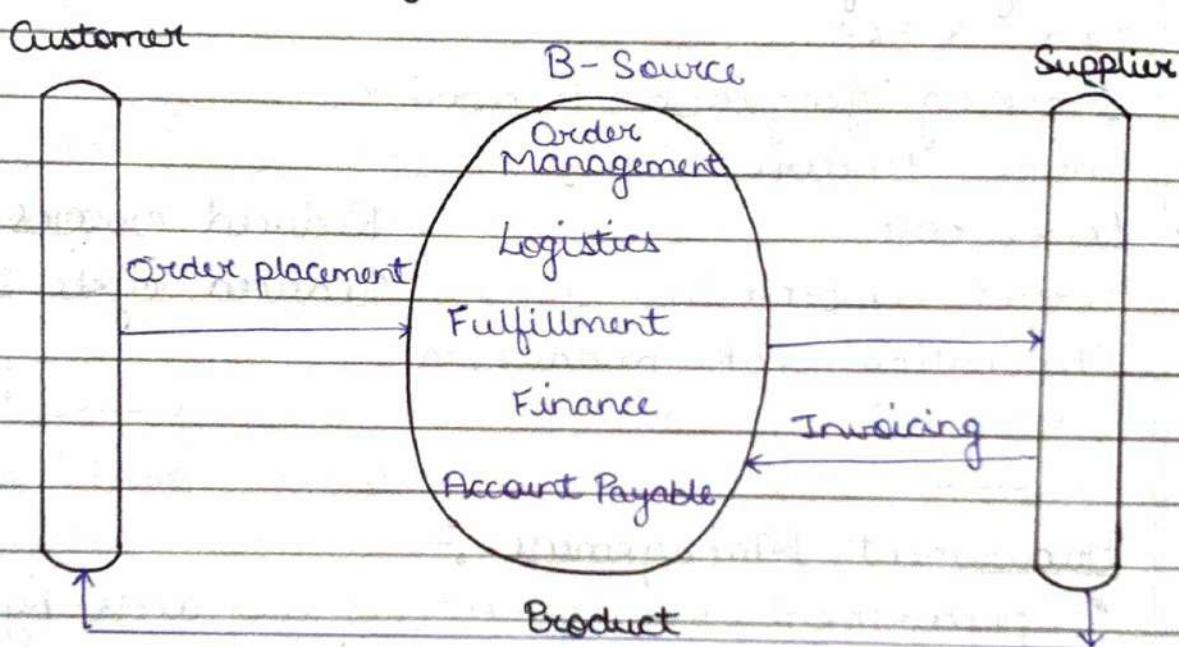
- E-Procurement - Procurement refers to the management activity that goes beyond the simple act of buying and include the planning and policy activities etc. Thus procurement is buying material/services of the right quality, at the right time, at the right price from the

right source with delivery at right place.

E-procurement concept depends on the following facts -

- 1- Analysis
- 2- Plan
- 3- Source
- 4- Buy
- 5- Monitor
- 6- Process control

- E-Procurement Cycle :-



This figure illustrates the different step associated with the procurement cycle from the order placement to the account payable in steps through a web based e-commerce network. It includes customer's inventory and supplier information at any time and anywhere.

E-procurement allows two-way communication of real time financial and purchasing information.

- Types of E-Procurement :-

- 1- Web-based ERP (Electronic Resource Planning) - ERP software packages are designed to optimise the resource planning of an enterprises.
- 2- EMRO (Maintenance, Repair, Overhaul) - This is same as web-based ERP except that the goods and services ordered are non-product related maintenance, repair and overhaul supplies.  
EMRO orders are of greatest benefit to automated production lines using numerical control machine tools.
- 3- E-Sourcing - E-Sourcing is the use of the internet for the identification of new suppliers for a category of purchasing requirement.
- 4- E-Tendering - E-tendering is the use of sending request for information and prices to suppliers and receiving the response of supplier using internet technology.
- 5- E-Information - E-procurement can be used for the simple job of exchanging purchasing information between buyer and supplier.

- Benefits of E-Procurement :-

1. Reduce purchasing cycle time and cost.
2. Enhance budget control.
3. Elimination of administrative error.

4. Increase buyer productivity
5. Lower prices through product of buyer
6. Improve information management
7. Improving the payment process

### ★ Just In Time Delivery (JIT) :-

Just in time is a production strategy that improve a business return on investment by reducing in-process inventory and, <sup>associated</sup> carrying cost.

Just in time reduces carrying and inventory cost between business to business entities.

A main principle of JIT is to keep inventory low and reduce overheads and carrying cost.

#### • Benefits of JIT -

- 1- Reduced setup time - JIT allows the company to reduce or eliminate inventory for change over time.
- 2 Employee with multiple skills are used more efficiently.
- 3 Production scheduling and work hours consistency synchronised with demand.
- 4 Increased emphasis on supplier relationship.

### ★ Other B2B Models :-

**E-Distributor** - E-distributor is one type of intermediary in B2B E-Commerce. These intermediaries are connect manufacturers with buyers such as retailers.

Companies that supply products and services directly to individual businesses are known as E-distributor.

The main advantage of E-distributor are -

- 1- Purchase request of the buyer can be fulfilled at any time.
- 2- Procedure has direct customer contact.
- 3- Shortages leads time are eliminated.
- 4- Reduced production shortage and distribution cost.

### Auction :-

An auction is a market mechanism by which sellers place offers and buyers make sequential bids. The primary characteristics of auction is that prices are defined dynamically by competitive bidding.

- Types of Auction :- There are two major types of auction -
  1. Forward Auction - The seller uses as a selling channels to many wires. Usually items are placed at site for auction and buyers will bid continuously for the item.
  2. Reverse Auction - In reverse auction, there is only one buyer which want to buy a product or service. Suppliers are invited to submit bids. The reverse auction is the most common auction model for large purchases.

For example - Government and large corporations are

using this approach.

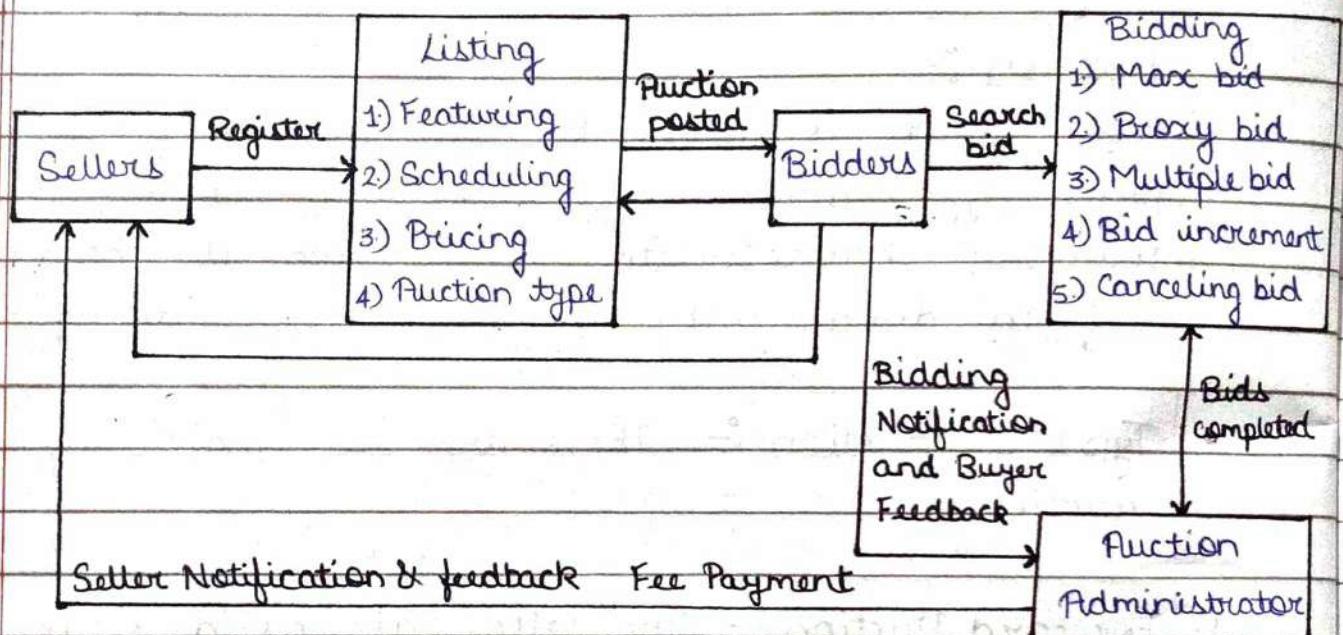
- **Process of Auction :-** In an auction, sellers and buyers usually complete a four phase process.

Phase 1 - Searching and comparing

Phase 2 - Getting started at an auction.

Phase 3 - Bidding

Phase 4 - Post auction activities



- **Advantages of Auction -** Electronic auction provider

the following benefits to seller -

- 1- Increase revenue
- 2- Optimal price
- 3- Removal of expensive intermediaries
- 4- Better customer relationship
- 5- Lower transaction costs
- 6- Lower administrative costs.

Electronic auction provide the following benefits to buyer -

- 1- Opportunities to find unique items.

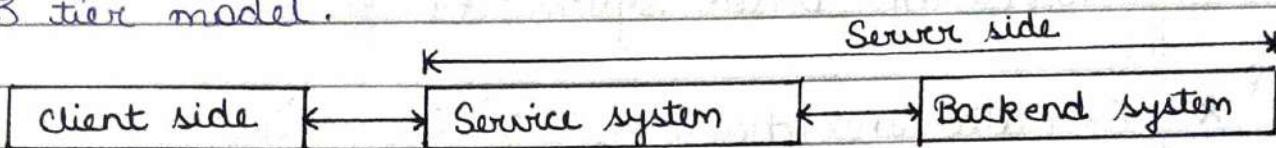
- 2- Lower prices
- 3- Entertainment
- 4- Convenience

- Disadvantages of Auction -

- 1- Possibility of fraud
- 2- Limited participation
- 3- Security
- 4- Long cycle time
- 5- Monitoring time
- 6- Equipment for buyer.

★ Integration with backend information system :-

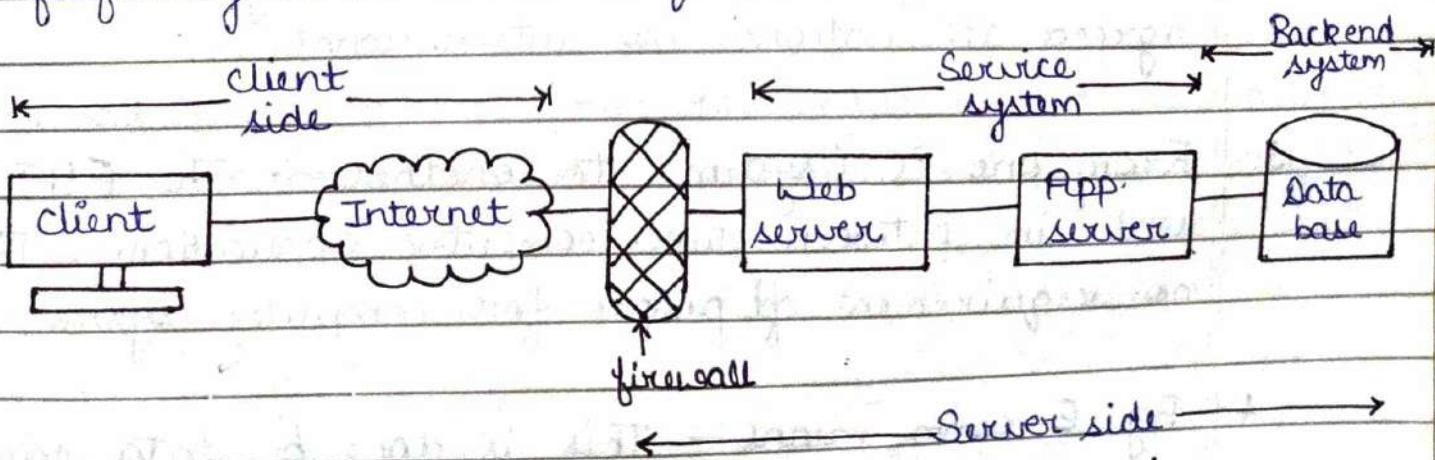
In general, e-commerce system can be represented by 3 tier model.



This 3 tier model has mainly three components -

- 1- Client side
- 2- Server system
- 3- Backend system

The service system and back end system are called server side. This 3 tier model is a client-server based computing system. The client side connect user to the system, the service system serve the users requests and the backend system support the service system in fulfilling the users request.



\* **Software agents :-** Software agents are effective tools for virtual organisation because they provide mechanism to automate several activities. Software agent finds application in a variety of domain including B2B E-commerce, internet based information system, robotics etc.

• **Needs of software agent -**

1. Manage the information
2. Decision support
3. Repetitive task
4. Knowledge based system

\* **E-data interchange [EDI] :-**

It is a communication standard that enable the E-transfer of routine document such as purchased orders.

The definition of EDI having four components -

- 1- **Structured data** - EDI transaction are composed of codes, value and short piece of text.
- 2- **Message standard** - EDI transaction having a standard format. The standard is not just agreed between the trading partner but it is a general standard agreed at national or international.
- 3- **From one PC (System) to another** - The EDI message sent in between two computer applications. There is no requirement of people for computer system.
- 4- **By E-comm means** - This is done by data communication

but the physical transfer of magnetic tape or data would be within the definition EDI.

#### \* Characteristics of EDI :-

- 1- Business transactions message - EDI is used primarily to electronically transfer repetitive business transactions. For example - purchase order, invoice, shipping notice and so on.
- 2- Data formatting standard - Since EDI messages are repetitive, it is sensible to use some formatting standards. Standards (rules) can shorten the length of the message and eliminate data entry error.
- 3- EDI translator - An EDI translator converts data into standard EDI format.
- 4- Private lines - EDI runs on value added networks, these networks provide a high level of security.

- **Advantages of EDI -**

- 1- Cost cutting
- 2- Elimination of errors
- 3- Fast response
- 4- Accurate invoice.
- 5- Electronic payments
- 6- Reduced stock
- 7- Business opportunities

- **Disadvantages of EDI -**

- 1- Operating procedure - EDI is a structured way of working so companies usually change operating procedure.
- 2- Production and purchasing decision.
- 3- Transparent - less transparent than paper based system.
- 4- Flexibility - EDI systems are highly flexible.
- 5- High cost - EDI applications are highly cost to develop and operate.
- 6- Limited accessibility - It does not allow consumers to communicate with vendors in an easy way.
- 7- Trading partner involvement - It involve high dependence on the participation of trading partners.
- 8- Data processing and communication error - Errors in computer processing may results in the transmission of incorrect information or inaccurate information.

\* Internet Based EDI :- Internet based EDI is generally used to describe EDI systems that can be accessed and used via a web-browser.

These systems are based on "Software as a service" principle where the user will pay a fee in exchange for access to the internet-based EDI system.

- Reasons of using Internet based EDI :-

- 1- Accessibility - The internet is a publicly accessible network.
- 2- Global reach
- 3- Low cost
- 4- Use of web technology
- 5- Easy to use

- Factors of internet based EDI -

- 1- Flat pricing - Flat pricing that is not dependent on the amount of information transferred.
- 2- Cheap access
- 3- Common mail standards
- 4- Security - Encryption are used for security.

\* Comparison between Traditional v/s internet based EDI:

Traditional EDI	Internet Based EDI
1- Dedicated network	Open network
2- Machine readable data or highly structured data.	Highly secure data. ex - email

3- High cost	Low cost
4- Must be very high transaction volume.	Large or small transaction value.
5- High possibility of clerical error during data entry.	Clerical error could be reduced.
6- Requires high and specific skills.	User friendly.

### \* EDI nuts and bolts :-

EDT model required for sending and receiving EDT messages. EDT is defined by its technology.

The technical elements of EDI system are -

1. EDT standard
2. EDI software
3. EDI network
4. EDI agreement

1. EDI Standard - Using EDI application on the computer of one organisation can communicate directly with the business application. EDI provide an electronic linking between two trading partner. Business transactions are output from the sending computer system and transmitted in electronic format and input into the second receiving computer system.

2. EDI Software - EDI software consist of computer instructions that translate the information from a unstructured format to structured format.

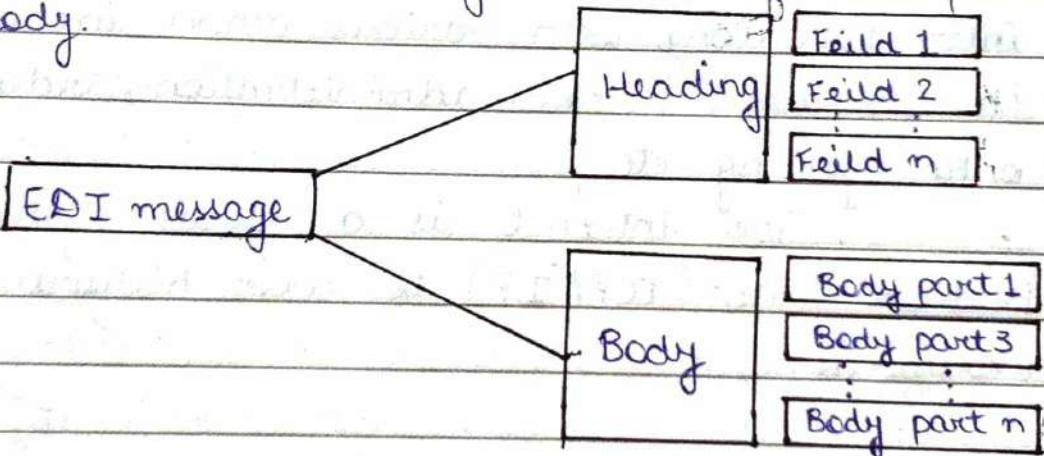
and then communicate the EDI message from sender to receiver.

EDI software also receive the messages and translate from standard format to company specific format. The requirement of EDI are -

- (a) A computer
- (b) A communication interface
- (c) Appropriate software

3- EDI Network - EDI documents are electronically exchanged over communication networks which connect business partners to one another. These documents are stored in the EDI server from where they can be downloaded or uploaded. Value added network are the third party communication network established for exchanging EDI traffic documents.

EDI message consist of two parts - heading and body.



- EDI message: Heading - A set of heading field each one of them is an information item giving a characteristic to the EDI message.
- Body - A sequence of one or more body parts of the message.

# Assignment

## Internet, Intranet & Extranet

### INTERNET :-

Internet is a worldwide, publicly accessible computer network of interconnected computer networks that transmit data using the standard Internet Protocol (IP). Largest internetwork in the world is Internet.

The internet is a collection of interconnected computer networks, linked by copper wires, fibre-optic cables, wireless connections etc. The World Wide Web is one of the services accessible via the internet, along with various others including email, file sharing, remote administration, video streaming, online gaming etc.

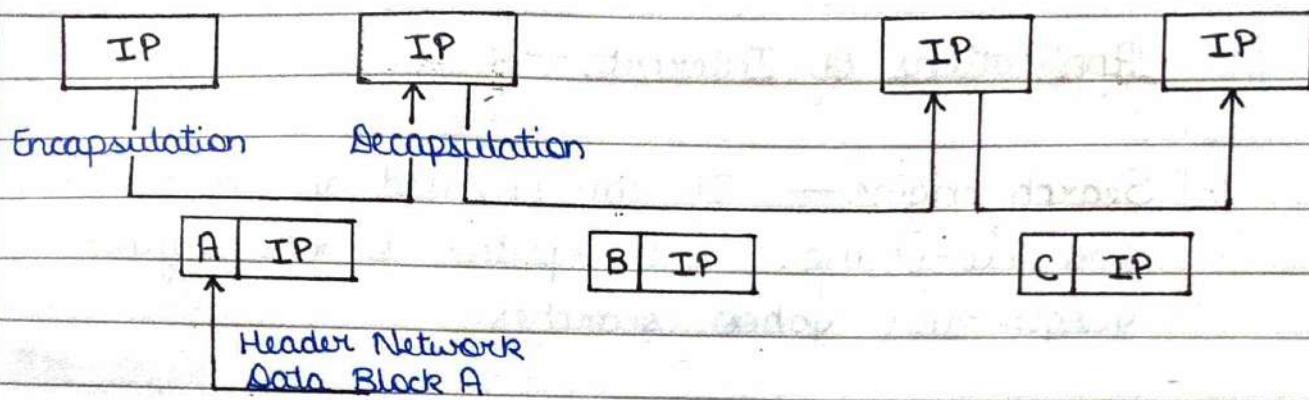
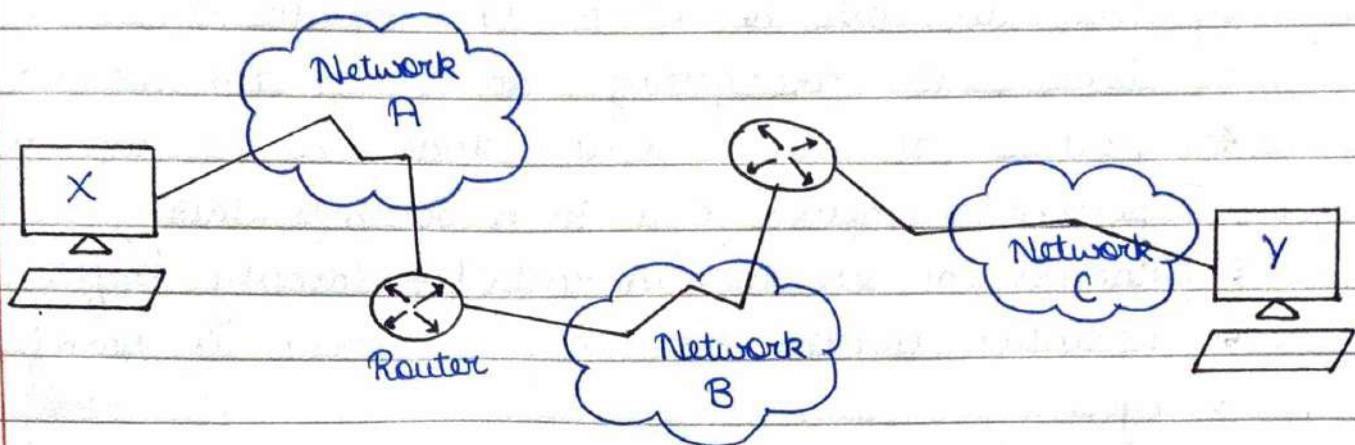
The internet is a global system of Internet Protocol Suite (TCP/IP) to serve billions of users worldwide.

### Structure of Internet -

The internet structure is based on a simple idea - ask all networks want to be part of carrying a single packet type, a specific format the IP protocol.

In addition, this IP packet must carry an address defined with sufficient generality in order to identify each computer and terminals scattered

throughout the world.



### Internet Structure

The user who wishes to make on this internetwork must store its data in IP packets that are delivered to the first network to cross.

### Advantages —

1. Information on almost every subject imaginable.  
Powerful search engines.
2. Ability to do research from your home versus research libraries.
3. Information at various levels of study.
4. The internet provides the ability of emails.
5. Platform for products like SKYPE, which allow for holding a video conference with anyone in the world who also has access.
6. All kinds of news is available ~~instantaneously~~.

## Disadvantages -

1. There is a lot of wrong information on the internet.
2. Easy to waste a lot of time on the internet.
3. Some people are getting addicted to the internet.
4. Hackers can create viruses that can get into your personal computer and ruin valuable data.
5. Hackers can use the internet for identity theft.
6. Radiation emitted by computer's screen is harmful to eyes.

## Applications of Internet -

- 1- Search engine — It can be used to search anything and everything. Most popular search engines are google and yahoo searches.
- 2- Communication — It helps people to communicate either with the use of social networking websites or through e mails.
- 3- Shopping — Shopping has become easier with the advent of internet. You can buy or sell online.
- 4- Research — Research papers are present online which helps in the researcher doing a literature review.
- 5- Job search — Nowadays, many people search for their jobs online as it is quicker and there is a large variety of job vacancies present.
- 6- Studying — The online educational books have reduced the need for a library.

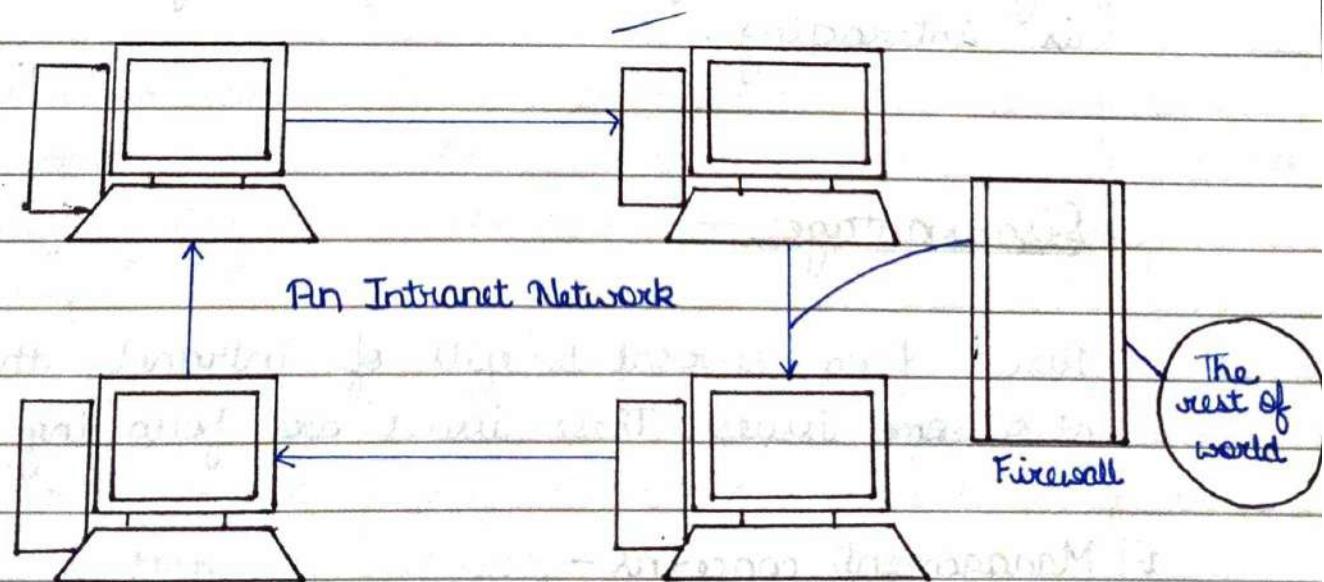
## INTRANET

Intranet is defined as private network of computers within its own server and firewall. Intranet is a system in which multiple PCs are networked to be connected to each other. PCs in intranet are not available to the world outside of the intranet.

Usually each company or organisation has their own intranet network and employees of that company can access the computers in their intranet. Every computer in intranet is identified by a unique IP address. An intranet can also be used to facilitate working in groups and teleconferences.

### Structure of Intranet —

An intranet is company-specific network that uses software programs, based on the internet TCP/IP protocol and common internet user interfaces such as web browser.



The intranet environment is completely owned by the enterprise.

## Advantages -

1. Intranet offers easy and cheap communication within an organisation. Employees can communicate using e-mails, or blogs.
2. Information on intranet is shared in real time.
3. Information is distributed among the employees as according its requirement.
4. Data is available at every time and can be accessed using company workstation. This helps the employees work faster.
5. It is also possible to deploy applications that support business operations.
6. Since information shared on internet can only be accessed within an organisation, therefore there is almost no chance of being theft.
7. Any changes made to information are reflected immediately to all the users.
8. Intranet targets only specific users within an organisation therefore, one can exactly know whom he is interacting.

## Disadvantages -

Apart from several benefits of intranet, there exist also some issues. These issues are following -

1. Management concerns -
  - Loss of control
  - Hidden complexity
  - Potential for chaos

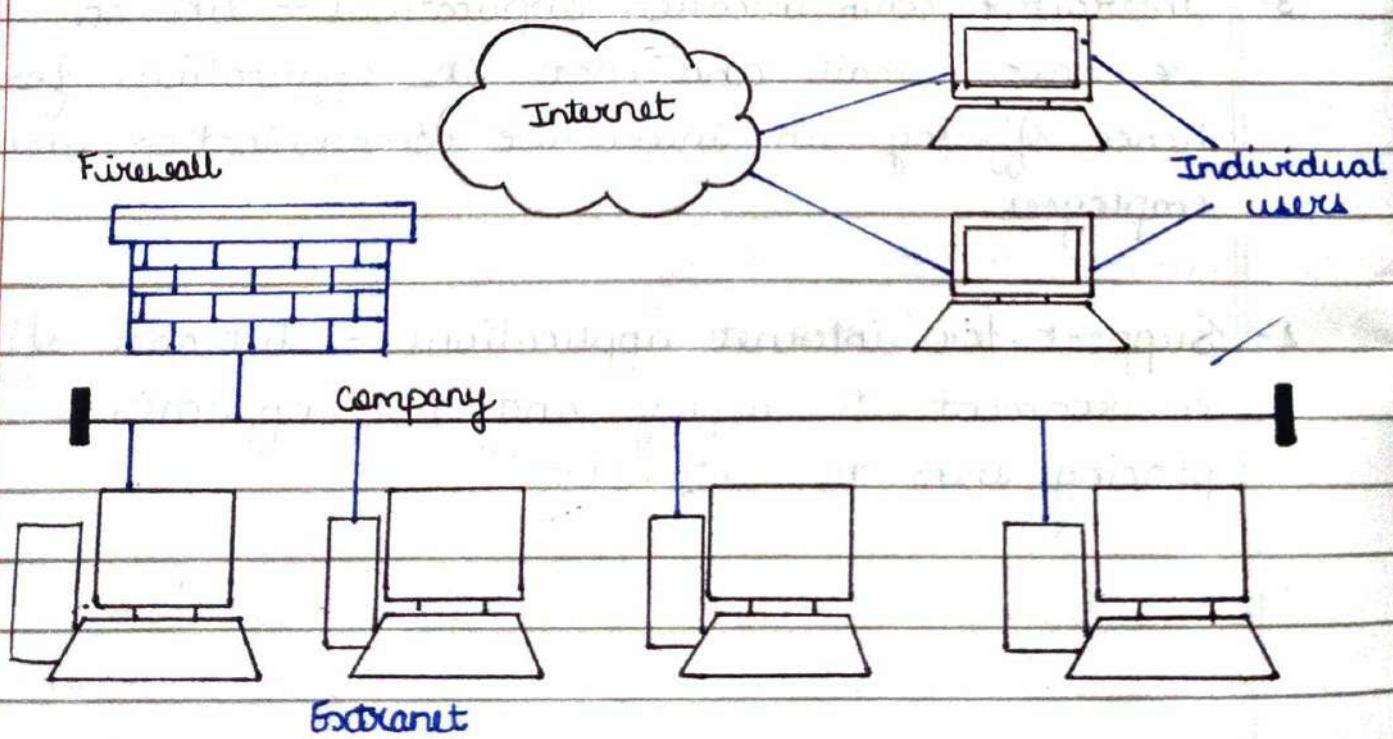
## EXTRANET :-

Extranet refers to network within an organisation, using internet to connect to the outsiders in controlled manner. It helps to connect businesses with their customers and suppliers and therefore allows working in a collaborative manner.

An extranet is a controlled private network allowing customers, partners, vendors, suppliers and other businesses to gain information, typically about a specific company or educational institution, and do so without granting access to the organisation's entire network. It is restricted to select users through user IDs, passwords and other authentication mechanisms on a login page.

### Structure of Extranet :-

Extranet is implemented as a Virtual Private Networks (VPN) because it uses internet to connect to corporate organisation and there is always a threat to information security.



## UNIT - 3

### Electronic Payment System

#### \* **SET ( Secure Electronic Transaction ) :-**

Secure Electronic Transaction is an open standard for protecting the privacy and ensuring the authenticity of electronic transaction.

This is critical to the success of electronic commerce over the internet without privacy, consumer protection and without authentication. Secure Electronic Transactions are the protocol for encrypted credit / debit card payment transfer.

#### • Features of SET :-

1- Confidentiality of information - Card holder's account and payment information is secured as it travels across the network.

2- Integrity of data - Payment information sent from card holder to merchant includes order information, personal data and payment instruction. SET ensures that these message content are not altered in transit.

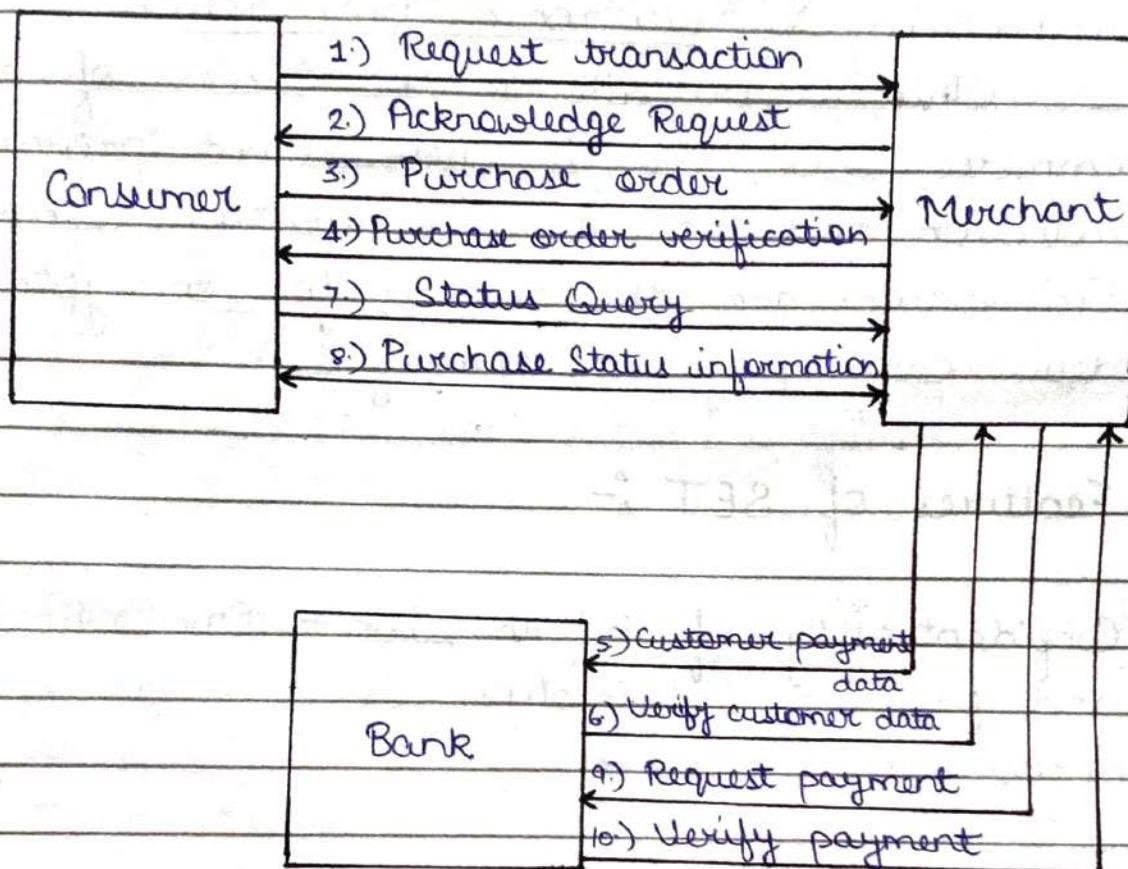
RSA, digital signature provide the message integrity.

3- Card holder account authentication - SET enables merchants to verify the card using valid card PIN number.

4- Merchant authentication - SET enables card holders to verify that a merchant has a relationship with

financial institution (bank) allowing it to accept payment using card.

- Working of a SET Protocol :-



### Methods to secure e-payment system

#### \* Security scheme in electronic payment system :-

1. Authentication
2. Public key cryptography
3. Digital signature
4. SSL (Secure Socket Layer)
5. SHTTP (Secure Hyper Text Transfer Protocol)

#### 1. SSL (Secure Socket Layer) -

SHTTP - It supports the variety of security mechanism to Http client of a server. It provide security service option to the wide range of end user. One advantage of Shttp is that it support end to end secure transaction. This means that multiple encryption / decryption is not <sup>to</sup> be done at every intermediate point.

### \* Electronic Payments :-

There are different types of electronic payment -

1. Electronic Credit Card
2. Electronic Fund Transfer
3. Debit card
4. Stored Value card
5. E-Cash
6. Electronic cheque system

#### 1. E-Credit Card :-

It is a plastic card bearing an account number assigned to a card holder assigned to

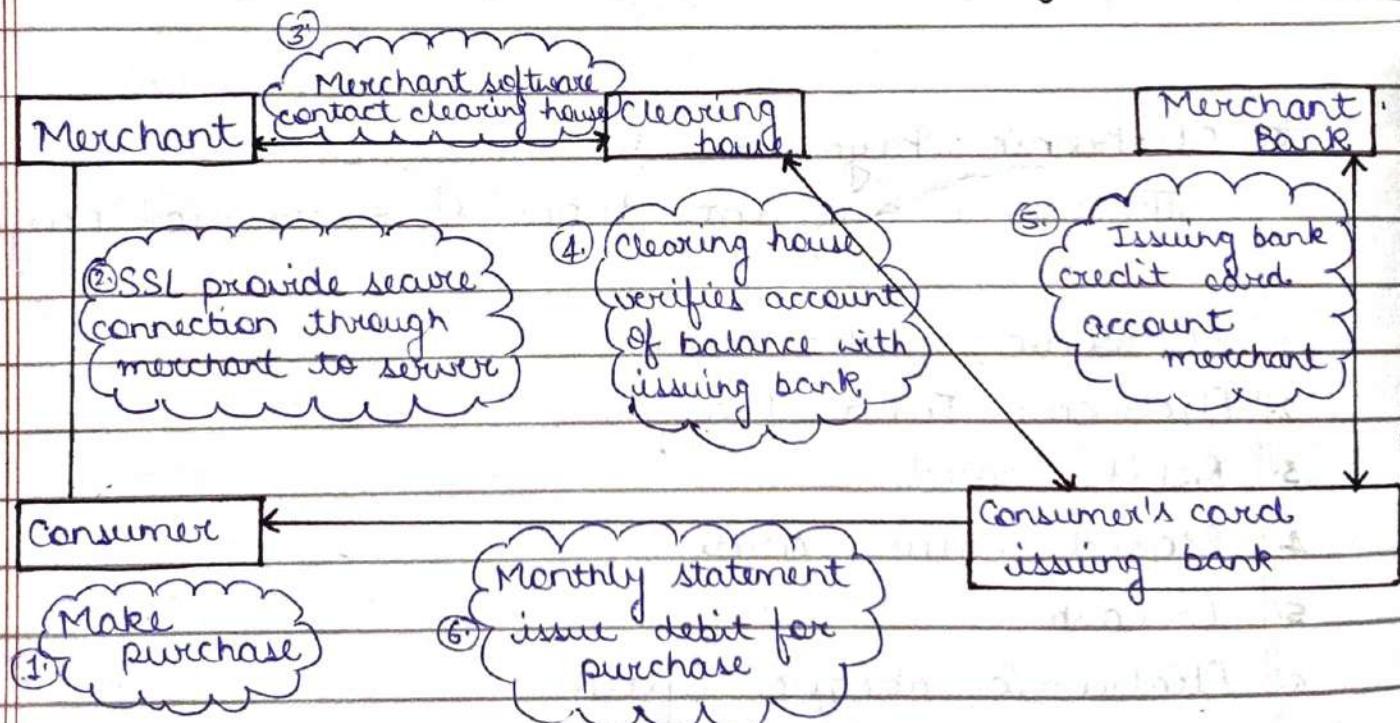
with a credit limit that can be used to purchase goods and services. After the certain period of time credit card bill is generated and will repay before due date.

### (a) Parties involved in Credit Card purchasing -

There are 5 parties involved in an online credit card purchase

- 1- Consumer
- 2- Merchant
- 3- Clearing house
- 4- Merchant's Bank
- 5- Consumer card bank.

### (b) Steps of online Credit Card Processing -



\* **Electronic Fund Transfer** :- Electronic fund transfer is the electronic exchange or transfer of money from one account to another. Electronic fund transfer provide an alternative method of paying for goods and services and making a wide range of financial transaction.

### Types of transaction in Electronic

1. Sale
2. Refund
3. Withdrawal
4. Deposit
5. Account transfer
6. Payment
7. Cashback

\* is deducted from the customer's account) Once the amount is transferred to other account, the customer is notified of the fund transfer by the bank.)

### 3- Debit Card :-

Debit card is a prepaid card with some stored value. A person has to open an account with the bank which gives debit card with a PIN (Personal Identification Number).

When the person wants to make a purchase he enters his PIN on shop.

- **Types of Debit Card** - There are two different types of debit card-
- 1. **Online debit card** - Online debit card use the same technology as ATM bank machine uses for dispatch cash and the authentication may consist a numeric f PIN which is known only to the card holder.
- 2. **Offline debit** - The use of debit card in this manner may have a daily limit, <sup>for withdraw</sup> and the maximum limit for the money on deposit. A debit card used in this manner is similar to a secured credit card.
- **Advantage of debit card**-
  - 1- No issue of creditability
  - 2- No tracking of debts
  - 3- Avoidance of writing cheques
  - 4- Less identification
  - 5- ATM transaction

### • Disadvantage of debit card :-

- 1- Possibilities of PIN lost.
- 2- Over limit fees
- 3- Interest by bank

### 4- Stored Value Card :-

Stored value card are one of the most dynamic and fastest growing product in the financial industry. Anyone who make purchase with a merchant for buying goods or services with a prepaid debit card is using a stored value card.

A stored value card can be an expand form of smart card with a microchip or with a magnetic strip that records the currency balance.

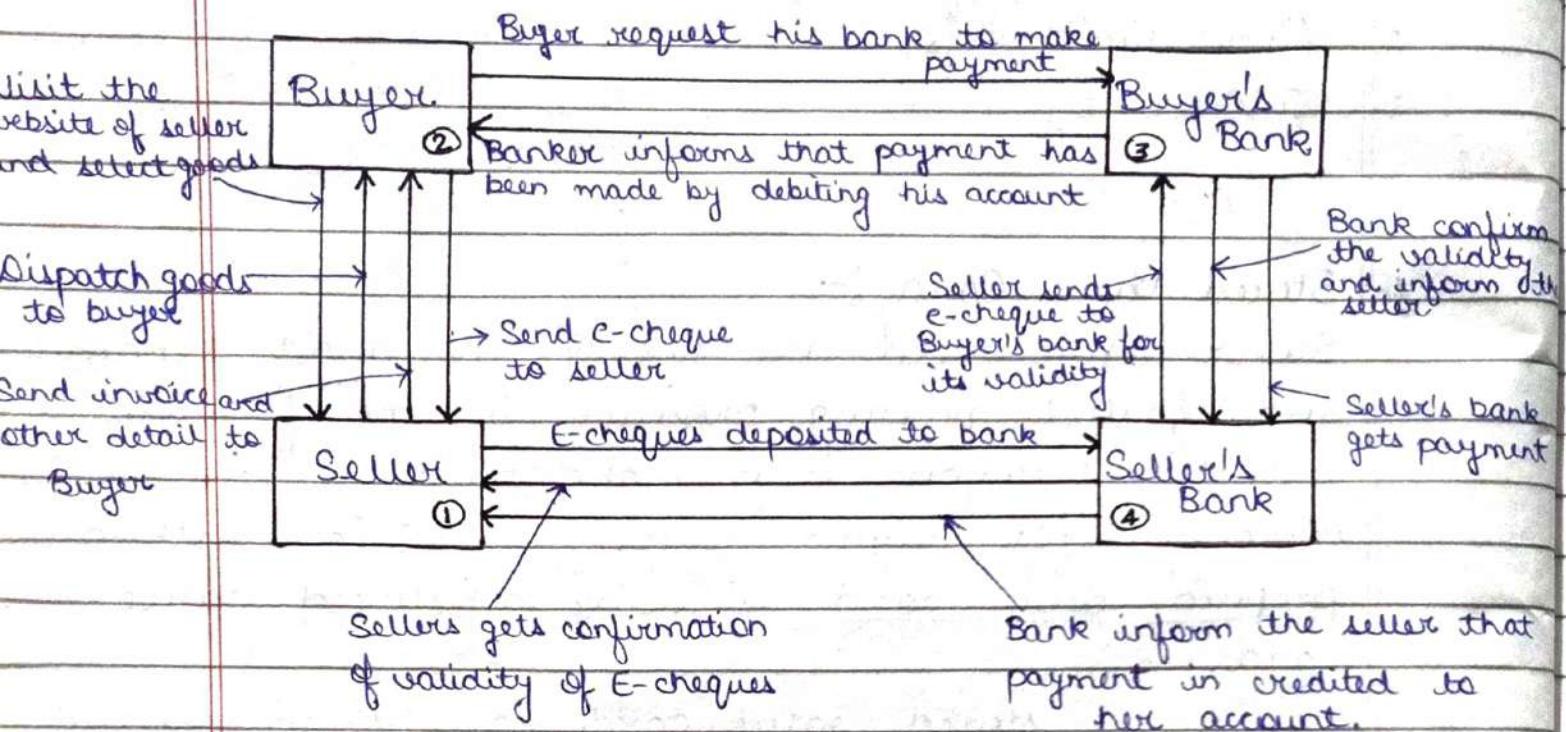
### 5- E-Cash / Digital Cash :-

The digital equivalent of cash is called E-cash. E-cash was one of the first form of payment system developed for e-commerce. The basic idea behind all digital cash system is payment over the internet while transmitting authenticated token which represent cash from customer to merchant.

### 6- Electronic cheque system :- Electronic cheque is another form of credit payment that customer use digital cheque to pay merchant directly.

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## • Working of Electronic Cheque -



## UNIT - 4

### Public Policy from legal issues to Privacy

#### \* E-Commerce related legal incident :-

The main legal incidents are

- 1- Contractual issue in e-commerce.
- 2- Copyright infringement on the web.
- 3- Domain name copy.

#### \* Ethical issues in e-commerce — There are many ethical issues related to e-commerce such as -

1. Channel conflict
2. Pricing conflict
3. Disintermediation and Reintermediation
4. Trust
5. Non-work related use of internet
6. Code of ethics
7. Privacy
8. Protecting intellectual property rights

#### 1- Channel Conflict — Channel conflict refers to any situation in which the online marketing channel upset the traditional channel due to real damage from competition.

When any two member of a channel or two different channel fails to reach an agreement regarding selling practice and each feels that the other prevent it to reach its goal then the channel conflict arises.

2- Pricing conflict — Prices are need to be competitive on internet. Today's comparison which show the consumer check or verify the prices at many store for almost are daily needs product.

### Disintermediation and Reintermediation —

Intermediation is one of the most important e-commerce issue related to loss of job. The service provided by intermediaries are -

- (a) Matching and providing information
- (b) Value added services such as consulting

• Disintermediation — The first type of service that is matching and providing information can be fully automated and this service is likely to be in e-market place and portals that provide free services.

The phenomena by which intermediaries who provide mainly matching and providing information services are eliminated is called disintermediation.

• Reintermediation — The broker who provide value-added services is known as infomediation.

This phenomena are not only surviving but may actually prosper. This phenomena is called reintermediation.

4- Trust — Trust is the psychological status of involved member who are willing to pursue further interaction to achieve a goal.

5- Non-work related use of internet — Employees are tempted to use e-mail and the web for non-work related purpose.

6- Code of ethics — Corporate codes of ethics express the formulation of rules and expected behaviour and action. The code should specify whether the company allows to setup their own webpage on the company intranet.

7- Privacy — Privacy is sometimes anonymity. The will wish to remain unnoticed or unidentified in the public field. When something is private to a person, it usually means there is something that is considered inherently special or personally sensitive. The degree to which private information is exposed therefore depends on how the public will receive the information which differ between place and time.

8- Protecting intellectual property rights — According to the world intellectual property organisation intellectual property refers to "creation of the mind that is invention, literacy and artistic works and symbols, name, image used in e-commerce."

#### • Types of Intellectual property —

There are three main types of intellectual property in e-commerce —

- (a) Copyright
- (b) Trademark
- (c) Patent

- (a) Copyright — A copyright is an exclusive grant from the government that confirm on its owner an essentially exclusive right to :
- Reproduce a work
  - Distribute, perform or display it to the publically.

(b) Trademark — A trademark is a symbol used by business to identify their goods and services. The symbol can be composed of words, numbers, shape or a combination of colours. Trademarks need to be registered in a country in order to be protected by law.

(c) Patent — A patent is a document that grants the holder rights to an invention for a fixed number of years. Patents are not designed to protect artistic or literary creativity. Patents confirm monopoly rights to an idea for an invention.

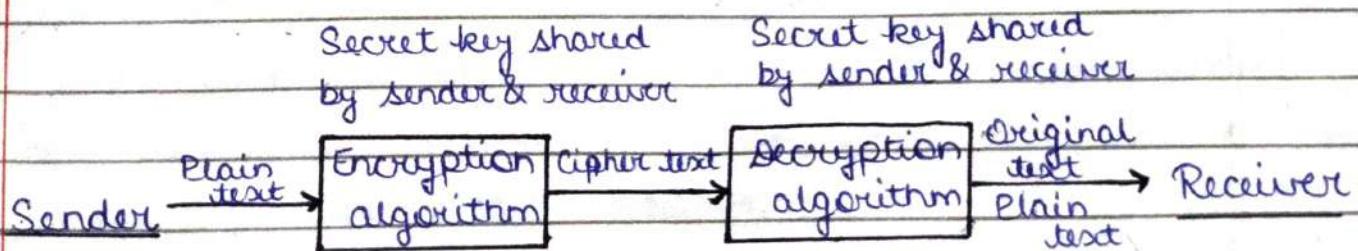
### \* Legal issues in e-commerce :-

1. Free speech
2. Internet Indecency
3. Censorship
4. Taxation
5. Encryption Policy

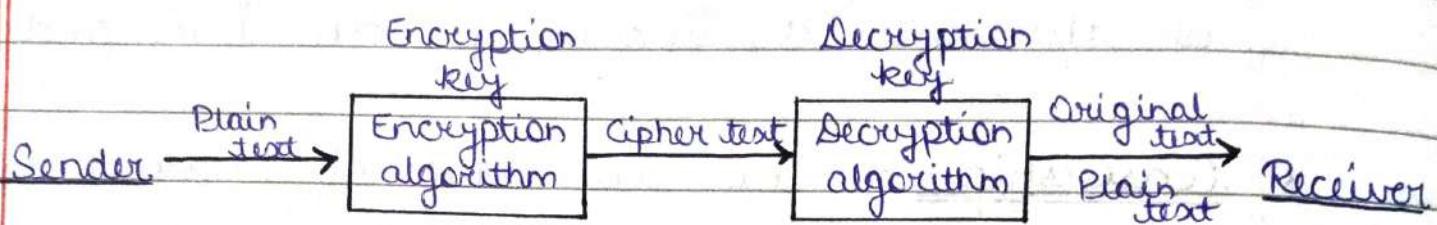
1. Free speech— On the internet, people enjoy their right to free speech as never before they enter checked room, put-up posting on bulletin and offer their opinion from books.

- Types of Encryption Policy :-

- (a) Symmetric key encryption -



## 2. Asymmetric key encryption -



## UNIT - 5

### Infrastructure for EC

Content — A network of network, internet protocol, web based client / server, internet security, multimedia delivery.

A network of network — A term internet is known as network of network. Now the question is raise from here. What is network? The answer is a computer network is a system in which multiple computers are connected to each other to share information and resources. Internet enables its users to share and access enormous amount of information worldwide. It uses HTTP, FTP, email services, audio and video streaming etc. At huge level, internet works on client-server model.

#### \* Characteristics of a Computer Network :-

- 1- Share resources from one computer to another.
- 2- Create files and store them in one computer, access those files from the other computer connected over the network.
- 3- Connect a printer, scanner, or a fax machine to one computer within the network use the machines available over the network.

Following is the list of hardware's required to set up a computer network.

- Network Cables

- Distributors
- Routers
- Internal Network Cards
- External Network Cards

### \* Applications of Communication & Computer Network :-

Computer systems and peripherals are connected to form a network. They provide numerous advantages:

1. Resource sharing such as printers and storage devices.
2. Exchange of information by means e-mails and FTP.
3. Information sharing by using Web or Internet.
4. Interaction with other users using dynamic web pages.
5. IP phones
6. Video conferences
7. Parallel computing
8. Instant messaging

### • Types of computer.

Local area network

Metropolitan area network

Wide area network

### \* Internet :- Internet is defined as an information super highway, to access information over the web. However, it can be defined in many ways as follows:

- 1- Internet is a world-wide global system of interconnected computer networks.
- 2- Internet uses the standard internet protocol (TCP/IP).
- 3- Every computer in internet is defined by a unique IP address.
- 4- IP address is a unique set of numbers (such as 110.22.33.114) which identifies a computer location.
- 5- A special computer DNS (Domain Name Server) is used to give name to the IP address so that user can locate a computer by a name.
- 6- Internet is accessible to every user all over the world.

### Evolution

The concept of internet was originated in 1969 and has undergone several technological and infrastructural changes as discussed below-

- The origin of Internet derived from the concept of Advanced Research Project Agency Network (ARPANET).
- ARPANET was developed by United States Department of Defence.
- Basic purpose of ARPANET was to provide communication among the various bodies of government.
- By the time, with invention of new technologies such as TCP/IP protocols, DNS, WWW, browsers, scripting languages etc. Internet provided a medium to publish and access information over the web.

## Advantages -

1. Internet allows us to communicate with the people sitting at remote locations.
2. One can surf for any kind of information over the internet. Information regarding various topics such as Technology, Health & Science, Social studies, Information Technology, Products etc can be surfed with help of a search engine.
3. Apart from communication and source of information, internet also serves a medium for entertainment.
4. Internet allows us to use many services like -
  - (a) Internet Banking
  - (b) Online Shopping
  - (c) Online Ticket Booking
  - (d) Online Bill Payment
  - (e) Data Sharing
  - (f) E-mail
5. Internet provides concept of electronic commerce, that allows the business deals to be conducted on electronic systems.

## Disadvantages -

1. There are always chances to loose personal information such as name, address, credit card number.
2. Another disadvantage is the Spamming. Spamming corresponds to the unwanted e-mails in bulk.
3. These e-mails serve no purpose and lead to obstruction of entire system.
4. Virus can easily be spread to the computers connected to internet. Such virus attack may cause your system to crash or your important data

may get deleted.

4. Also a biggest threat on internet is pornography.
5. There are various websites that do not provide the authenticated information. This leads to misconception among many people.

#### \* Transmission Control Protocol (TCP) :-

TCP is a connection oriented protocol and offers end-to-end packet delivery. It acts as a backbone for connection. It exhibits the following key features:

- 1- TCP corresponds to the transport layer of OSI model.
- 2- TCP is a reliable and connection oriented protocol.
- 3- TCP offers connection oriented end-to-end packet delivery.
- 4- TCP ensures reliability by sequencing bytes with a forwarding acknowledgement number that indicates to the destination, the next byte, the source expect to receive.
- 5- It retransmits the bytes not acknowledged with in specified time period.

#### \* Internet Protocol (IP) :-

Internet Protocol is connectionless and unreliable protocol. It ensures no guarantee of successfully transmission of data. In order to make it reliable it must be paired with reliable protocol such as TCP at the transport layer. Internet protocol transmits the data in form of a datagram as

shown in the following diagram -

4	8	16	32 bits
VER	HLEN	D.S. type of service	Total length of 16 bits
		Identification of 16 bits	Flags 3 bits      Fragmentation Offset (13 bits)
Time to live	Protocol		Header checksum (16 bits)
		Source IP address	
		Destination IP address	
		Option + Padding	

Points to remember :-

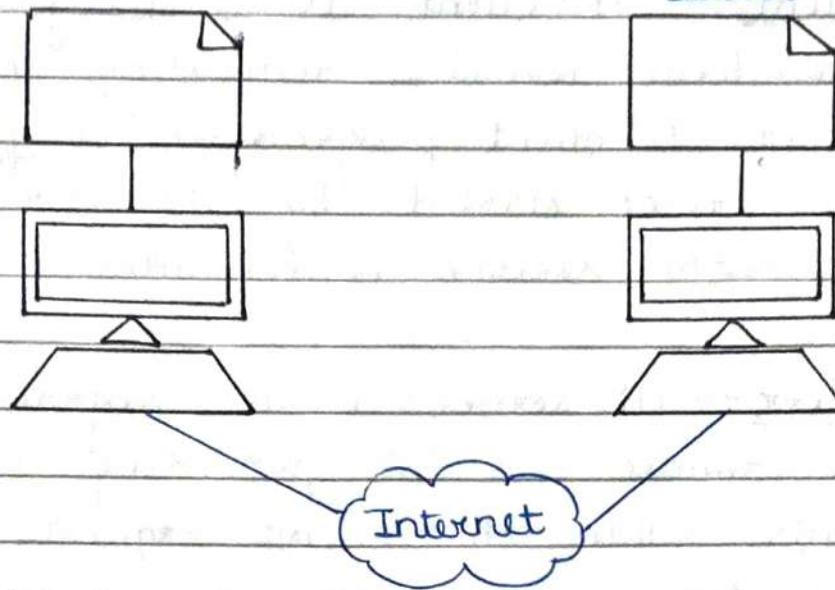
- (a) The length of datagram is variable.
- (b) The datagram is divided into two parts - header and data.
- (c) The length of header is 20 to 60 bytes.  
The header contains information for routing and delivery of the packet.

\* Client and Server model :-

- A client and server networking model is a model in which computers such as servers provide the network services to the other computers such as clients to perform a user based tasks. This model is known as client - server networking model.
- The application programs using the client - server model should follow the given below strategies -

Client

Server



- An application program is known as a client program, running on the local machine that requests a service from an application program known as a server program, running on the remote machine.
- A client program runs only when it requests for a service from the server while the server program runs all time as it does not know when its service is required.
- A server provides a service for many clients not just for a single client. Therefore, we can say that client-server follows the many-to-one relationship. Many clients can use the service of one server.
- Services are required frequently, and many users have a specific client-server application program. For example, the client-server application programs allows the user to access the files, send e-mail, and so on. If the services are more customized, then we should have one generic application program that allows the user to access the services available on the remote computer.

- Client — A client is a program that runs on the local machine requesting service from the server. A client program is a finite program means the service started by the user and terminates when the service is completed.
  - Server — A server is a program that runs on the remote machine providing services to the clients. When the client requests for a service, then the server opens the door for the incoming requests, but it never initiates the service.  
A server program is an infinite program means that when it starts, it runs infinitely unless the problem arises. The server waits for the incoming requests from the clients. When the request arrives at the server, then it responds to the request.
- Advantages of Client - server networks —
    1. Centralized — Centralized back-up is possible in client - server networks. i.e., all the data is stored in a server.
    2. Security — These networks are more secure as all the shared resources are centrally administered.
    3. Performance — The use of the dedicated server increases the speed of sharing resources. This increases the performance of the overall system.
    4. Scalability — We can increase the number of clients

and servers separately, i.e., the new element can be added, or we can add a new node in a network at any time.

- Disadvantages of Client-Server network -

1. Traffic Congestion is a big problem in client/server networks. When a large number of clients send requests to the same server may cause the problem of traffic congestion.
2. It does not have a robustness of a network i.e., when the server is down, then the client request cannot be met.
3. A client / server network is very decisive. Sometimes, regular computer hardware does not serve a certain number of clients. In such situations, specific hardware is required at the server side to complete the work.
4. Sometimes the resources exists in the server but may not exist in the client.

## \* Multimedia Technologies :-

**Importance of Multimedia in E-commerce -** Text is the most commonly used media for communication. It is widely used for communication of education, information, entertainment and many more through books, newspaper and magazines. Use of photography and pictures improves the presentation of a text. This improvement is brought through multimedia which is a combination of different

media such as text, sound, video, graphics, animation and many more.

Since the multimedia is a tool to enhance the level of communication, it is now being used as an effective tools in sales promotion for attracting customers. There are some important functions of multimedia in e-commerce are discussed below —

Nowadays, online shopping are very popular by using mobile devices. Smart phones have cameras which provide both the requirements and demands of multimedia technologies.

#### \* Delivery Methods —

Multimedia content can be delivered via the internet, or by more traditional methods such as CDs and DVDs.

Traditional Delivery Methods — DVD video offers high quality full motion video in a standard format which can be viewed with a standard player and television. Multimedia CD/DVD can be played on most personal computers and may be used for video as well as any type of multimedia content which can be delivered online.

- Internet Multimedia — More and more frequently multimedia content is being delivered via the internet in an ever-increasing list of ways, including public web-sites, dealer portals, blogs, social media sites, and chat rooms.

Online content can be accessed by a

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desktop PC for on demand viewing or downloaded locally for later viewing. Access is available anywhere at any time subject to the constraints of the viewer's Internet Service Provider (ISP) and/or Local Area Network (LAN) and the owner of the content.