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PG & RESEARCH DEPARTMENT OF COMMERCE

DEPARTMENT OF COMMERCE

II.M.COM

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E-COMMERCE

SYLLABUS

Code: P16MCE4A

UNIT-I

Introduction to E-commerce – Electronic commerce frame work – Electronic commerce and media convergence - Anatomy of e-commerce application- Components of the I-ways- Network access equipments- Global information distribution network- Internet terminology- NSF NET- Architecture and components-National research and educational network.

UNIT-II

Electronic commerce and world wide web- Architectural frame work of E-commerce-www Architecture- Hypertext publishing- consumer oriented application-Mercantile process model- Consumer perceptive- Electronic payment system- Types- designing EPS- Smart cards and EPS- Credit cards and EPS.

UNIT-III

Electronic Data Interchange [EDI]- Application- security and privacy issue-Software implementation- Value added networks- Internal information systems- Work-flow Automation and Coordination customization-Supply chain Management.

UNIT-IV

Marketing on the Internet- advertising on the internet- Charting the online marketing process-E-commerce catalogues or directories information filtering- Consumer data interface emerging tools.

UNIT-V

Multimedia and digital video-Concepts- Digital video and E-Commerce- Video Conferencing- Frame Relay- Cell Relay- Mobile Computing-Frame work-Wireless Delivery Technology- Cellular Data Communication Protocols.

UNIT-I

SECTION -A

1. What do you mean by „E-Commerce“?

E-Commerce is the environment in which the business activities such as buying, selling, packing, transportation, banking, insurance and warehousing are carried on electronically. In E-Commerce, telecommunication facility is used, data processing is done quickly and there is increase in quality and standards.

E-Commerce is the commercial activity carried out with the use of electronic media especially using computers, network and various digital devices. E-Commerce increases productivity, reduces cost, regulates business process, provides better consumer service and creates better and new opportunities for merging entrepreneurs.

2. Define „E-Commerce“.

E-Commerce is the commercial activities carried out in such a way that there are paperless transactions. It is defined as the paperless exchange of business information using various electronic systems such as Electronic Data Interchange, Electronic Bulletin Board, Electronic Fund Transfer and other network based technologies.

3. What are the „E-Commerce transactions“?

E-Commerce has many transactions. They are the exchanges that take place when the Organization sells a product or service to the consumer or to another seller or business men. The transactions may be between business and business, business and consumer or consumer and consumer. There can be transactions with the governments, officials dealing with excise, customs, income tax, sales tax etc. Many groups are directly and indirectly involved in e-commerce transactions.

4. What is meant by I-WAY?

Many countries have achieved in modernizing the transport systems by providing super highway and sophisticated roads and rails for fast movement of goods and services from one state to another. Inter-state highways systems have provided for the faster distribution of goods and thus have increased productivity. At present efforts are being made to form networks for the faster distribution of information and is being popularly known as Information Superhighway (I-WAY)

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5. What do you mean by „External Integration“?

External integration has become the part of E-Commerce and the success of E-Commerce transaction depends on the integration of the system with external agencies. The activities, that are normally carried out are procuring orders, accepting orders electronically, simultaneous information flow to suppliers, production department, finance department, billing

department, inventory department, personnel department, packing department, shipping department etc. Thus, the activities that are taking place inside the organization are integrated to achieve efficiency in the functioning of the organization.

6. What do you mean by „addressing“?

The vehicles and the data passing through the highway require specific address and the location is to be clearly specified. The destination should also be clear. The following are to be considered in addressing: (a) Vehicle address, (b) Course of transport, (c) Cost, (d) Type of vehicle, and (e) Break down alternative.

7. Define „Convergence“.

Convergence is the welding of consumer electronics, television, publishing, telecommunication and computer for the purpose of facilities new forms of information based commerce. The convergence may be classified as: (1) Multimedia convergence; and (2) Cross media convergence.

8. What do you mean by „servers“?

The servers are computers that shares resources with other computers on the Internet. In the content of E-Commerce, the servers are the systems or programs that provide information to other ends called clients. The entertainment or games servers provide digital information relating to games and entertainment. The corporate servers provide information to the access persons in a reliable and secured way. The information is stored in digital way and these servers directly benefit the corporate clients. Library servers are those servers, which provide variety of information from music to general knowledge, examination to employment and all relevant data. They are the clients on payment as well as on free basis. There are chat lines also for the purpose of direct communication through chat rooms.

9. What is meant by „Transmission“ convergence?

Transmission convergence is the concept of transmission of data from the information provider to the information-needed person. The activities are converged in digital technology. The data are compressed and transmitted through telecom wires, cables and wireless technology. Information highway is the new name given for the transmission convergence at present. The computers are connected through this technology. Input devices, output devices- high-speed devices, etc., are attached for the purpose of transmission of data at high speed. The transmission technology has developed due to the innovations in the field of LAN, WAN, Internet etc.

10. What do you mean by B2B transactions?

Business-to-Business type of E-Commerce comprised of many major commercial activities and these activities are conducted over networks. Financial transactions, purchase orders, bills, payments, etc., were earlier done through private networks. This portion of E-Commerce is restricted to the known partners and the methods used are secure procedures based

on firewalls, encryptions and legal authorization level with usual trade terms and conditions. These private nets assisted the closed circles only and hence the role of outsiders was restricted. However, at present, the Business-to-Business e-commerce is done between business units.

11. What is meant by intra-company transaction?

Web based technology is used to improve and transform the business communications between the business houses. These intranets take internet beyond their organizations to their business goods suppliers and business buyers. Accounting transactions are carried out within seconds. Extranets are used in this section

12. What is meant by „Anatomy of E-Commerce Applications“?

There is increasing usage of e-commerce applications in all walks of life. It has become a powerful driving force for all type of business organizations. Multimedia is a part of infrastructure. There is need to study the e-commerce applications, multimedia and about access points.

13. What do you mean by „Multimedia Combinations“?

The multimedia is the combination of various form of data or information, which are in the digital form. The possible combinations of the multimedia are:

- Text
- Images
- Audio
- Video
- Animation
- Holograms
- Numerical data
- Graphics
- Combined piece files
- Combined piece documents

14. What is meant by „Video Servers“?

The video servers are the servers that provide digital video for telecommuting, video-conference, demographical information system etc. E-Commerce requires storage and navigation over maps, multimedia serves, post-production studios and related aspects. The video servers provide for consumer application, such as, video on demand, shopping, navigation, directories etc. Modern television serials, mini pictures and documentaries have resulted in the development of new video servers.

15. What do you mean by „Payment Management“?

The aim of E-Commerce is to minimize paper transaction or to create an environment with no papers. The transactions are done electronically and there will be no use of papers. Except physical distribution, all transactions are done electronically. Payments can be done electronically with advanced electronic payment device. Errors in orders, bills and invoices will not exist and hence payment will be less due to digital payment methods.

16. What do you mean by „Access Road“?

Access roads or Last Mile or on-ramps are linkages between business, educational institution, and homes to the communication backbone. There are local access roads. They are:

- Telecom based.
- Cable TV based.
- Wireless based.
- Computer based on-line information including Value Added Networks (VAN).

17. What is meant by „Computer based Telephony“?

Private Branch Exchange (PBXs), telephones, Facsimile products modems, wire processing equipments and video communications equipments are consumer product equipments. Personal communications are beginning to emerge as viable consumer product equipment. These devices combine voice, data, and facsimile functions and enable users to send, store, and receive information over wire lines or wireless network.

18. What are the „Digital Switches“?

Switching has six generations. They were earlier signal operator controlled. Then there came step-by-step electro-mechanical switches called as strowger design. The third one was crossbar mechanical. The fourth one was semi-electro switching stored program control computers, analog and digital. The fifth one was the totally electronic Solid State software driven digital. The sixth generation or the present one is the fibres optic based integrated switching and transmission system enabling distributed architecture, multimedia system.

19. What is meant by „Internet“?

Interconnected network (Internet) is the important component of the I-way. It is a fine information distribution system prevailing in various countries. It is combination of postal service, telephone system, research library, supermarket and a theatre hall. Information is exchanged between individuals and groups. Information exchange takes place in seconds at least expense.

20. Define „Video Conference“.

Video conferencing is a recent technological advancement. In this method, there is use of television equipment to link geographically dispersed conference participants. The equipment provides both sound and picture. Video conferencing may be (a) point to point video conferencing or (b) Multi-point video conferencing.

21. Expansion of (a) LAN (b) WAN (c) MAN (d) VAN.

LAN -Local Area Network.

WAN -Wide Area Network .

MAN -Metropolitan Area Network.

VAN –Value Added Network.

22. What are the „Middle level Regional Networks“?

These are the middle tier in the three-tier Internet structure. They are the bridges between the users and the providers. Some of the regional networks in US are.

- FARNET
- CERFNET (California Educational and Research Federation Network)
- SURANET (Southern Universities Research Association Network)
- ESNET –Energy Science Network
- NSI-NASA Science Internet
- TWBNET-Terrestrial Wide Band Network
- MILNET

23. What do you mean by „Local ISPs“?

The local ISPs provide customers support and services. There are technical supports round the clock. Customers are covered by these local ISPs as they provide quality services and support. There is freedom of expression. These ISPs change quickly according to circumstances. The local ISPs run Bulletin Boards, free nets, libraries etc. Exchange Of messages, information and programs are allowed between member users.

SECTION –B

1. Discuss the utilities of E-Commerce.

E-COMMERCE UTILITIES			
Business	Service	Online	Transaction
Automation	Expectation of firm	Accuracy choice,	Acceptance
Competition	Expect of consumers	Flow of information	Consensus
Profit	Low cost	Payments	Legality
Smooth flow	Quality	Knowledge speed	Prompt delivery
Cheap cost			Value

- a) Regulated and controlled business activities using systems model;
- b) Need based developments for firms, individuals, consumers etc.,;
- c) Providing all information relating to various products and services;
- d) Cost reduction activities;
- e) Quality improvement activities;
- f) Quick delivery increase in speed of delivery;
- g) Use of network and computers;
- h) Searching facility;
- i) Retrieval facility;
- j) Decision taking methods;
- k) Alternate decisions;
- l) Management Information System;
- m) Decision Support System;
- n) Knowledge Based System; and
- o) Artificial intelligence.

2. Explain the recent developments in the field of E-Commerce.

- Major business activities at global level;
- Introduction of social technologies;
- Use of consumer generated content from multimedia;
- Use of modern search engines;

- Modern advertising and marketing facilities;
- Reach of various demographic segments;
- Use of e-books, e-music, e-brokerage;
- Developments in the field of e-home appliances;
- Higher increase in Wireless Internet Connectivity;
- Developments in field of network and communication technology;
- Mobile computing technology development;
- Social networking, e-publication;
- Internet based entertainment;
- E-publishing;
- Digital copyrights; and
- Digital libraries.

3. Analyze the unique features of E-Commerce.

E-Commerce has many unique features. Some of them are:

1. E-Commerce has global reach. The technology is utilized in all nations.
2. It is virtual reality.
3. It is rich with information and provides maximum information.
4. Provides individual need based messaging services.
5. Provides interactivity among various uses.
6. Provides social technology and social networking.
7. Provides text, audio, video, graphics and all types of entertainment.
8. Uses international or universal standards for transactions.
9. Uses internet and web technologies. It can be reached from all places.
10. Works in digital area.

4. State the Customer interaction forces in E-Commerce.

The success of business depends on the mode of interaction of the organization with the customers. Interactions with the consumers commence from the stage where the information is supplied to the consumer or customers in the electronic media. The data relating to the products and services are provided to the customers. The data relating to the consumers, their preferences, behaviour etc., are collected from various sources including that of customers. These organizations also try to get feedback about the transactions and customer satisfaction aspects, in the post-sale period. The target consumers are to be identified and necessary data are to be provided to them. Further information relating to new products is to be provided to the customers. The marketing activities, such as market segmentation, marketing mix, etc., are to be undertaken based on the analysis of information.

The marketing environment is to be made clear. Complexities in the activities are to be avoided. Customer loyalty is to be developed. The relationship between the customer and the firm should be improved and should be more effective. The consumers also get various choices and their rights are also protected in these stages.

5. Explain the various data highway forms.

DATA HIGHWAY FORMS

Various forms of data highway are: (1) Telephone wire, (2) Cable TV wire, (3) Radio based wireless, and (4) Cellular and satellite links.

TRAFFIC HANDLING

Traffic handling in the information highway depends on the following aspects:

Highway width.

Number of lanes

Toll ways.

Revenue generated in e-commerce.

Number of vehicle transporting information, multimedia content.

ADDRESSING

The vehicles and the data passing through the highway require specific address and the location is to be clearly specified. The destination should also be clear. The following are to be considered in addressing: (a) vehicle address, (b) Courses of transport, (c) Cost, (d) type of vehicle, and (e) break down alternative.

WAREHOUSE

Warehousing concept requires various advanced digital technological aspects. Some of the tools are:

Servers.

Sharing electronic files-tools.

Method of storing digital and compressed files.

Computerized libraries.

Software, hardware clients to allow customers to access the data.

Transportation

The transportation of data or digital information is to be done from server to server. For this purpose, some tools are to be used. They are some messaging software such as:

E-mail.

Electronic data interchange.

Point-to-point transportation tools.

New Vehicle System Accommodation

The highway should be in such a way to accommodate new vehicles. The vehicles have to ensure the following:

Safe delivers,

Proper destination,
Mode of payments,
Encryption and authentication methods.

Legal and Logical Issues

Some of the legal and logical issues that are directly connected with the information highway are:

Government.
Pattern of trade.
Commercial code.
Case histories.
Public policy.
Cost of accessing information.
Regulations to protect consumers from fraud.
Environmental impact policy of global information traffic to detect information piracy.

Standards

The information highway should conform some standards for full utilization. Some of the standards that are to be maintained are:

Separate tracks.
Universal standards such as electricity, telecommunication.
Seamless and harmonious integration.
Convergence of technical, policy and business concerns.

6. Explain the various types of convergence.

Convergence is the concept of polling together all materials and resources at one place for easy and guide distribution. Amalgamation, absorption and merge are taking place in the electronic markets. The aim of such convergence is to reduce the risk of uncertainty in the global market.

Types of convergence

Multimedia convergence:

It refers to the convergence of text, sound, data, image, graphics and video into digital content.

Cross media convergence:

It refers to the convergence of various industries such as entertainment, publication, and communication media etc.

Storage convergence:

It refers to act of storing the digital data in a particular format in a particular mode. The data are stored in services and digital libraries for easy access by the needed consumers.

Information convergence:

It refers to the way of convergence of various types of information. The information may be related or not related but the convergence will be in such a way that accessing client need not have to go out for information required.

Access device convergence:

This type refers to method of standardizing the required access tools and equipment to facilitate easy and un-interrupted access to information. Even the modern telephone equipment's without personal computer keyboard, mouse or television with modem can be used to receive fax, e-mail etc., in the television itself. The ordinary television itself is now being modified in such a way that data are received through this equipment's.

7. Explain the C2C transaction and B2B transaction.

Business-to-Business (B2B)

Though commerce is having the consumer as the main target, the whole sales, agents, retailers, and the intermediaries cannot be under estimated. Business-to-Business type of E-commerce comprised of many major commercial activities and these activities are conducted over networks. Financial transaction, purchase orders, bills, payments, etc. However present, to Business-to-Business type has developed to magnification level. Business-to-business e-commerce is done between business units. Internet connects al business. In this stage the intermediaries such as whole seller and broker are eliminated. B2B e-commerce is the main reason behind the increase of extranets. Extranet is the network whose boundaries extend beyond internal cooperate uses to include external partners in business.

Customer-to-Customer (C2C)

This type of e-commerce is gaining momentum. The internet as well as the agencies engaged in maintains server and web allow consumers to advertise on the sites. The sites allow the consumers to provide information about the products and help them in selling their products. They are classified according to similarities. For example, if a person wants to cell his car, he can approach the site, get the permission and advertise about his car for sale with required information. The sites act as a platform for displaying the consumer's information. It is to be noted that the role of intermediaries is minimum in those transaction and the seller as well as the buyer gets direct contact so that there is always indent of minds in these transaction.

8. Examine the various E-Commerce activities.

The following are included in the E-commerce activities:

1. Advertising and promotion of products.
2. Tracking of orders and shipments.
3. Pre-sale and post-sale services.
4. Internet e-mail and messaging.
5. Facilitating contact between traders.

6. Inventory, distribution and warehousing management.
7. Supply chain management.
8. Logistic management and personnel management.
9. Financial management and personnel management.
10. On-line publication.
11. Forms and designs, documents.

9. Analyze the advantage of E-Commerce.

1. Access to new markets for all categories of business.
2. Reduction in advertisement costs.
3. Goods as per requirements/specification.
4. Better quality of goods and services.
5. New market creation through ability to reach potential customers.
6. Lesser time to complete transactions.
7. Time saved, low overhead cost, less errors.
8. Cost of transaction is least to seller and buyer.
9. Flexibility in operations-more information.
10. Shopping from in house or workplace-no transport cost.
11. Lesser risk of obsolesce of stock.
12. Very wide geographical market.

10. State the limitations of E-Commerce.

1. Security is the prime concern in E-commerce.
2. Attack by virus, electronic vandalism and other acts.
3. Transactions are some time not secured.
4. Access is not easier in some areas.
5. Access cost is higher due to cost of access provide.
6. Lesser legal framework support.
7. Quality of the product cannot be verified.
8. Confidences of the customer cannot be verified.
9. Requirement of high technological devices and support systems.
10. More fraudulent transactions.
11. If volume of traffic increases, then slow response.

11. State the Normal Technologies used in E-Commerce.

NORMAL TECHNOLOGIES IN E-COMMERCE

- i) Electronic Data Interchange (EDI)
- ii) Electronic Fund Transfer (EFT)
- iii) E-Mail.

Electronic Data Interchange

Electronic Data Interchange is used to transmit documents such as orders, bills notices, bills of lading, and certificate of origin, advices and other business mails between the known two trading partners. It is way of substituting electronic transactions for paper ones. It is not a just substitution it is for increasing reliability, accuracy, efficiency and productivity. For example, the customer may request for a price quotation or for details. The seller sends quotation through electronic network. The buyer places the purchase order. The seller acknowledges the order and the seller asks for the status enquiry about the buyer. The buyer responds to the status enquiry. After his process, the purchase order is processed and shipping notice is prepared with invoice. As the invoice is sent to the buyer, the payment remittance advice is received from the buyer in the form of accounts receivable or payable. Thus, there is a procedural process in electronic data interchange.

Electronic Fund Transfer

Electronic Fund Transfer is the transmission of financial information and payments in electronic form. If EDI is used for financial transactions, then it is referred to as the financial Electronic Data Interchange and it is popularly known as Electronic Fund Transfer method. Secured Transactions are carried out in the Electronic Fund Transfer methods. Thus, the unnecessary financial, physical transactions are eliminated. Bank transactions are minimized and the time is saved. Payments are also guaranteed and will be within a specific period of time. This method is getting popularized due to various new electronic technologies, such as, digital cash, tokens and further more by credit cards.

Electronic Mail (E-Mail)

Business activities depend upon the mail system prevailing in the environment. The orders, acceptances, payments etc., usually depend upon the mail system. To have a comprehensive quick mail system and to have efficient and effective responses, electronic mail is used. Electronic mail is the way by which the messages are electronically transferred or transmitted without the paper mode. Network act as the intermediaries and the technologies quicken the process. There are sender, receiver, coding, decoding etc., as usual, but the specialty is the clarity, reliability and convenience in e-mail system. There are many security systems for maintaining the reliability. Firewall is the software of the server. It tracks the information inflow and outflow from the outer environment to inner environment.

12. Explain the factors influencing the internal structure of E-Commerce.

The factors, which influence change in internal structure and practices of business for accepting E-commerce technology, are as follows:

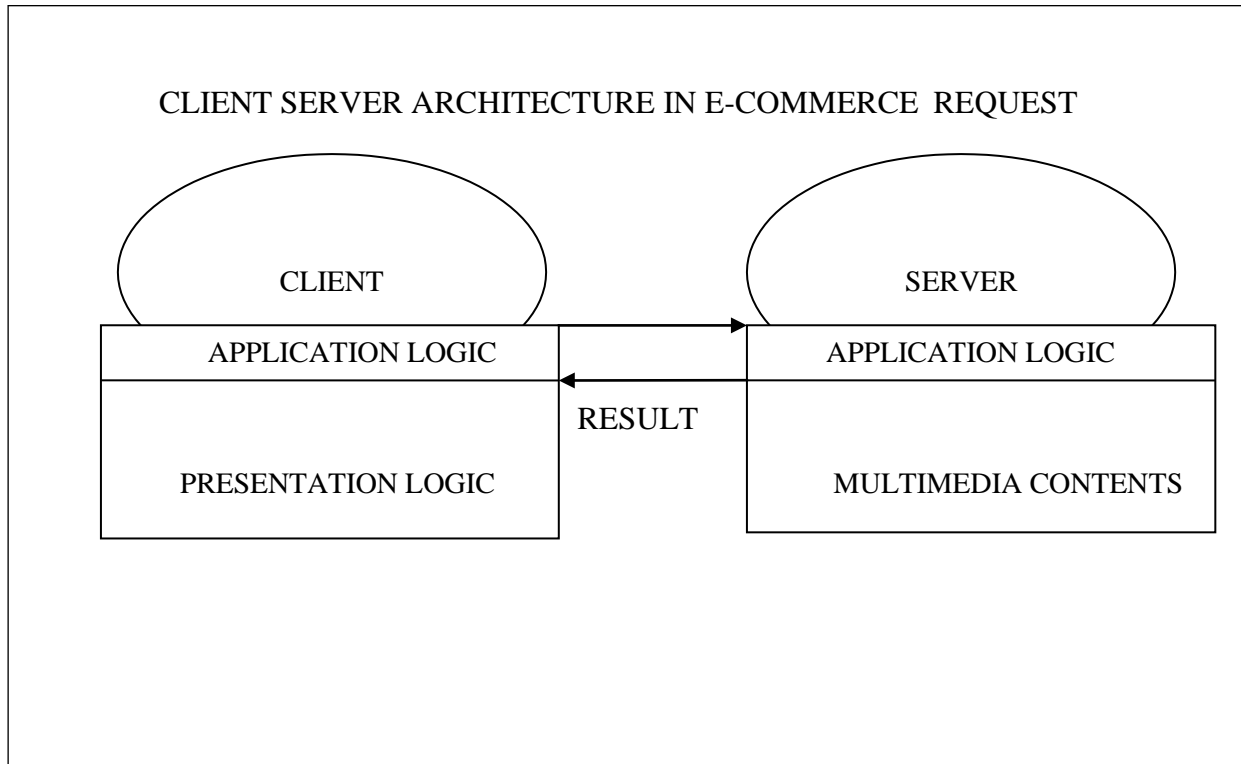
- i. Increasing demand from consumers.
- ii. Modified consumer requirements.
- iii. Competitors' position and pressures.
- iv. Informal pressure from the organization.
- v. For improved financial performance.
- vi. Now for minimizing cost.
- vii. New product innovations.
- viii. Changes in information technology.
- ix. Globalization process.
- x. Quick information supply.
- xi. New customers in widened markets.

The companies try to cope up with the changes in the business environment and maintain or increase their market share. Various factors had compelled the organization to adopt E-commerce strategies in their organization.

E-Commerce has entered retail industry also. In developed countries, retailing is consistently increasing through E-commerce. Consumers demand quality products at competitive prices from the retailers as they are getting all types of information through various sites. Sometimes the consumers are directly contacting the organization for better products and services ignoring retailers. Thus, the impact of e-commerce is seen in retail industry also. E-Commerce applications are utilized in marketing, inventory management, just in time manufacturing etc.

13. Explain „Client Servers Architecture“ in E-Commerce.

In business there are buyers and sellers. Similarly, in E-commerce, there are clients and servers. The client is a program or Internet service that sends commands to and receives information from the corresponding program at a remote server. The internet services run as client server programs. Gopher is a best example. Gopher is a new oriented system that gives access to document files and other Internet services regardless of where they are on the Internet. This software for Gopher was created and developed at the University of Minnesota to allow users to browse and retrieve documents in a campus environment. When a user starts a client program on her computer, it contacts a Gopher server. Server is a computer that shares resources with other computers on the Internet.



In this architecture, the client device requests information from the servers. The earlier mainframe based models were too costly and too slow to accommodate audio and video media. The present model links the user computer to the stored database server. Many computation are done by this client. The client inter-acts with the server through a request reply process. This process is known as message passing. The servers are designed in such way that this can handle move clients at the same time. The servers have the capability of application tasks, storage handling and provides security and scalability. The server technology has the capacity of distribution, connectivity, security etc.

14. Who are „E-Commerce Intermediaries“? Explain.

Though the aim of E-commerce is to provide direct service to the consumers, it has to depend on some intermediaries for fulfilment of transactions. Intermediaries are those electronic agents who stand between the sellers and the buyers while doing transactions. They are also called as „Electronic Brokers“. The Electronic Brokers are the intermediaries who perform the services needed for the buyers as well as for the sellers. The venture capital firms, banks, insurance companies, funding agencies are some of the intermediaries in the field of e-commerce. Further, there are many technical online intermediaries in the field of e-commerce. Some of the online Intermediaries are:

1. Financial intermediaries.
2. Network providers.
3. Network access providers.
4. Equipment providers.

5. Information providers.
6. Information access providers.
7. Report providers.
8. Payment servers.
9. Transaction servers.
10. Others.

Online intermediaries perform certain excellent function in business field. They provide needed information to the consumers for finalizing the transactions. They differ in the pattern of providing assistance from the traditional intermediaries. The intermediaries get brokerage for their services. Electronic Brokerage is the service for providing various functions such as connecting the buyer and the seller, providing value added services, providing more information relating to products and services etc. There are also „intelligence agents“, who follow certain guidelines and they have autonomy to react pro-actively to conditions existing in that business environment.

The financial intermediaries provide finance related services to the consumers in E-Commerce. Network providers are the intermediaries who are providing the needed network technology for the development of e-commerce activities. Network Access Providers are those intermediaries who provide access to the consumers and the business people to the data or information through various equipments. Access providers are powerful intermediaries in the field of E-Commerce. Information providers are those intermediaries who provide or maintain databases and servers. They provide the needed information to the consumers. The information Access Providers are responsible for providing access to various information needed to the consumers.

15. Explain the functions of ISP.

The following are the main functions of the Internet Service Providers:

1. To provide Internet access for business firms.
2. To provide network management to other service providers.
3. To provide system integration.
4. To provide backbone access services.
5. To provide client and server software.
6. To provide navigating software.
7. To provide the contents of publishing.
8. To provide various payment systems.
9. To provide for online purchase and sales.

The Internet Service Providers are concentrating on various research activities to reach the ultimate consumers. Many firms are trying to provide professional management system in their firms. These firms are trying to maintain equilibrium between profitability and consumer satisfaction. Their services are quality oriented and are aimed at acquiring consumer loyalty. Though cost of providing quality service is the prime constraint, these firms are trying to retain and increase their customer base.

16. Analyze the issues in Information Super Highway.

The following are the major issues that are to be studied in I-way:

1. Cost,
2. Subsidies,
3. Allocation of scarce resources,
4. Local regulations,
5. Universal access,
6. Privacy, and
7. Social issues.

1) **Cost:** The investment cost is comparatively high in I-way. The question as to who can bear the cost of constructing the I-way remains unanswered. (i) Some people favour the interstate highway model with government contribution with ownership and maintenance. (ii) Some people favour regulations like in telephone models. (iii) Some people favour private company owned models.

2) **Subsidies:** I-way requires huge investment but the return could not be expected over night. Hence, the organizations are expected to get subsidies, tax concessions and use by the government and other public corporations. In the developing countries, the governments have to come forward to give major subsidies, tax concessions tax holiday and promise to use these highways for government purpose.

3) **Store resource allocation:** There is always an element of risk in providing I-way. Some feel that the investments may not give back reasonable returns. There is also no guarantee that this I-way will be fully utilized. However, many feel that I-way may create new markets globally.

4) **Local regulations:** I-way infrastructure requires the assistance from the local governments also. The governments may impose regulations even though the investments are made by private companies. Government may regulate the provisions relating to access procedure, privacy aspects and fees or cost aspects.

5) **Global access:** This cost of access may differ in various countries. The countries must have uniform Telecom policy, but the policy should provide equal access opportunities to all globally. Some consumers may have to be served at a lesser cost so that the system spreads globally. The providers of I-way have to serve all the people with all the countries so that the cost is affordable by the people in each and every country. The reduced cost at certain places may provide new markets and these concessions may be adjusted in the new market incomes.

6) **Information privacy issues:** Many companies are providing the information relating to the consumers to others. For example, On Line Services Company had released market customer information list. The list contained following consumer information such as marital status, hobbies, occupation, type of computer equipment used by the customer, number of children, income, expenditure etc. These profiles were made available to all members. Fears arose as to

whether this information may be abused by others for the personal favour. Thus, there is always a question of privacy in the network.

7) **Social barriers:** Cyberspace represents a place for free speech and a form of democracy. Censorship cannot be enforced in these networks. It may cause social or religious problems.

17. Examine the policy implications in global access.

The following are the policy implications in global access or connectivity: (i) Access to local infrastructure (ii) Global usage policies and (iii) Technology standards.

Access Local Infrastructure

Its inside a country is a local government policy. There may be problems due to economic variations between the developed and developing countries. There may be political problems due to public and private sectors companies engaged in this network. At present telecom, wires are used for connections and it is more costly in many countries.

Global Usage Policies

The under developed nations may not be in a position to invest more in these access technology. The developed nations have to help the developing countries and subsidize the cost. Many governments have initiated changes in the telecom infrastructure. They are converting from analog to digital circuits. Thus, efforts are taken in many countries for providing easy access to the infrastructure. The cost of utilizing the access infrastructure requires a controlled form in many countries. Some government agencies pick up the costs of the long transmissions channels and their international partners pay for the local distribution circuits within their own countries.

Technology Standards

The infrastructure has been complex because of the different standards in each and every place. Standards are not uniform and differ according to the policy of the country. Consensus on standards is required in this complex international environment.

18. Discuss „Internet Technology“.

The Internet connects various countries. The networks belong to several domains, governments, educational institutions, public organizations, private companies and some entrepreneurs. The components of computers in Internet are:

- i. Stand-alone computers.
- ii. LANs (Local Area Network)
- iii. MANs (Metropolitan Area Network)
- iv. WANs (Wide Area Network)

Stand-alone computers are individual house computers. LANs are Local Area Networks. Usually they are limited to one building. MANs are the Metropolitan Area Networks and they exist to an approximate area of 80 to 100 square kilometers. The WANs are Wide Area Networks that cover multiple geographical areas. The LANs consist of limited number of users, may be from 100 to 1000 sharing printer, server, etc.

Internet is classified into two categories based on languages spoken by host computers:

(i) Academic; and (ii) Business.

The academic internet is the core Internet. All the host computers speak the language Transport Control Protocol or Internet protocol (TCP/IP).

The business internet can speak variety of languages other than TCP/IP including ISO/OSI X.25 based switching networks. There are various service providers such as Compo Serve, Prodigy, America Online, Fido Net, Apple Link, Minitel and UUCP network.

I-way is directly related to Internet. I-way includes both academic and business Internet. It extends the non-IP based network and protocols.

19. Describe the „Growth of Internet“.

The growth of Internet is divided into six categories. They are:

- i. Experimental Networking such as APRANET
- ii. Internet as a discipline – CSNET, HEPET, MILNET
- iii. Research – NSFNET, BITNET
- iv. Commercialization, NSFNET
- v. Data access for research any NREN
- vi. Universal Information Highway I-way

In the first stage, from 1965, the experimental net workings were done by DOD. In the second stage, a specific research discipline was conducted by CSNET, MILNET and HEPNET and MFENET.

In the third stage, general research networking was done by NSFNET and BITNET. The traffic increased substantially and transmission capacity has increased. In this stage, NSFNET changed as backbone network service. During 1990, internal connectivity had become an essential tool for the conduct of research institutions. There were major developments. High Performance Computing Act of 1991 established for

- i. Commercialization of network services.
- ii. Creation of national information infrastructure.
- iii. Research in high performance computing and networking technologies.

In the fourth stage there were privatization and commercialization in internet technology restrictive usage policies were dropped, subsidies for regional networks were abolished. The internet came out from the researchers to commercial people.

20. Explain „NSFNET“ with its importance.

NSFNET is the largest single government investment in the NSF funded program. Almost all the network users throughout the world pass information to or from members. The

NSFNET backbone sites were interconnected to the new ANS provided (Advanced network services) by T-3 backbone. Higher development is noticed in the number of local state and regional networks. The cost reduction was noticed in general in the past. However, it can be said that the Internet is privatized to certain extent as majority of activities are carried out by the private sector. Due to some non-profit activities, there is development in expertise, competition and in commercial services.

21. Analyze the advantages of National ISPs.

- a. National ISP provides integration and consultancy services.
- b. Connect all of its company sites instead of maintaining the connections internally.
- c. It is maintained in star topology.
- d. It requires only one leased line from each corporate location to the nearest ISP hub.
- e. The network management responsibility is given to the skilled personnel, the connectors are reducing unnecessary overheads.
- f. The reliability of the network increases.
- g. Provides professional news and information.
- h. Provides video conferencing facility.
- i. Provides gate way that load non-IP traffic in to the IP packets for transmission across the Internet.
- j. Moves heavy traffic from the private network to an Internet access part.
- k. ISP enables users to provide and receive open system interconnection traffic over the Internet.

22. State the differences between Internet and Online services.

	Internet	Online Services
1.	Operates on the open system	Operates on the closed system
2.	Content independent of services	Content dependent on services
3.	Access charges mostly fixed	Access charges fixed or variable
4.	User interface independent of services	User interface depends on services
5.	More individual users	More business or corporate users
6.	Charged usually on monthly basis	Charges on hourly basis
7.	Easy to operate	Can be accesses through Internet
8.	Modernization and innovations	Business details, business oriented
9.	Uncontrolled contents	Controlled contents
10.	Flat rate models	Metered pricing models

23. Explain the „Internet Access Provider Market“.

The future of the IAP market depends on four major activities.

- i. Increase in virtual firms.
- ii. Networking with higher performance.
- iii. Integration of LAN and WAN.
- iv. Increasing Universal Online access.

Internet access market depends on the increasing number of virtual firms with more mobile users, third party contractors etc., who access to data from the main database. The increased performance due to integration of voice, data, and video will also induce the development of the IAP market. The local and wide area networks are to be integrated with the global networks for the purpose of promoting global access.

The consumers and the access providers also expect certain developments in the field of access to databases. They are:

- i. Data, voice and video convergence.
- ii. Speed management.
- iii. Capacity management.
- iv. Improved customer services.
- v. Customer loyalty and Retention of Customers.
- vi. Getting new customers.
- vii. Consumer education aspects, and
- viii. Improving technology.

The IAP market has to consider the advancements in the field of Information Technology and various convergence practices. The data, voice and video are to be converged to provide quality information to the customers. The access providers are facing increased number of customers with different tastes and requirements. They have to provide the needed data or information at the required speed. Further, the capacity management technique is to be followed by the access providers to manage the increasing clients. High traffic is noticed at present in the information channels. Maintaining a customer in the competitive digital environment is really a tough task for the access providers. Lack of useful information, poor system hardware, worthless software etc.

24. Types of Tele-Conferencing.

TELE-CONFERENCEING

Electronic meetings between geographically scattered persons at different sites by allowing the participants to interact with one another is tele-conferencing. These persons need not travel to other locations.

TYPES OF TELE-CONFERENCEING

Teleconferencing is divided into two types. (i) Audio conferencing and (ii) video conferencing.

Audio Conferencing

Audio conferencing is a modern technique followed for communication between various groups of people at the same time. It allows groups of people at various places who are in various countries to communicate with each other. Audio conference is done through computers and is normally resorted to when the group is small or medium. Audio conferencing is the method of use of voice communication equipment between geographically scattered persons to establish an audio link.

Video Conferencing

Video conferencing is a recent technological advancement. In this method, there is use of television equipment to link geographically dispersed conference participants. The equipment provides both sound and picture. Video conferencing may be (a) point to point video conferencing or (b) Multi-point video conferencing.

If two points alone are connected, then it is point-to-point video conferencing. If more points are connected, then it is multi-point video conferencing. Video phones broadloom conferencing and desktop-to-desktop conferencing are point-to-point conferencing. If various points such as production, purchase, sales, logistic, finance etc., are at various places and if the Head wants to communicate, then multi-point video conferencing is carried out. Video conferencing is a type of net meeting system that uses the computers and other communication channels to have conferences. The people may be in various countries and they may be in a position to take part in decision-making. Conference rooms may be built with computers, video cameras, microphones and monitors. Meeting will be real, live and face-to-face participation is possible. The participants can see as well as hear other participants. In video conferencing, the computer digitizes sound and video images. They are converted into analog signals and transmitted over the telephone lines. The receiving computer reconverts the analog into digital signals. The audio and video messages are presented through television, sound system and monitors.

There are three types of Video Conferencing. They are (i) One-way video with one-way audio;

(ii) One-way video with two way audio and (iii) Two-way video with two way audio. At present most of the video conferences are conducted in Two way video with two-way audio types.

25. Types of Network.

A network may be a LAN or WAN or MAN or VAN.

LAN– is the Local Area Network. Where computers are connected by a continuances wire or by wireless link and housed in a single building or in nearby buildings. The number of computers connected may be less than one hundred and the area is limited. All types of accessories can be shared in the network.

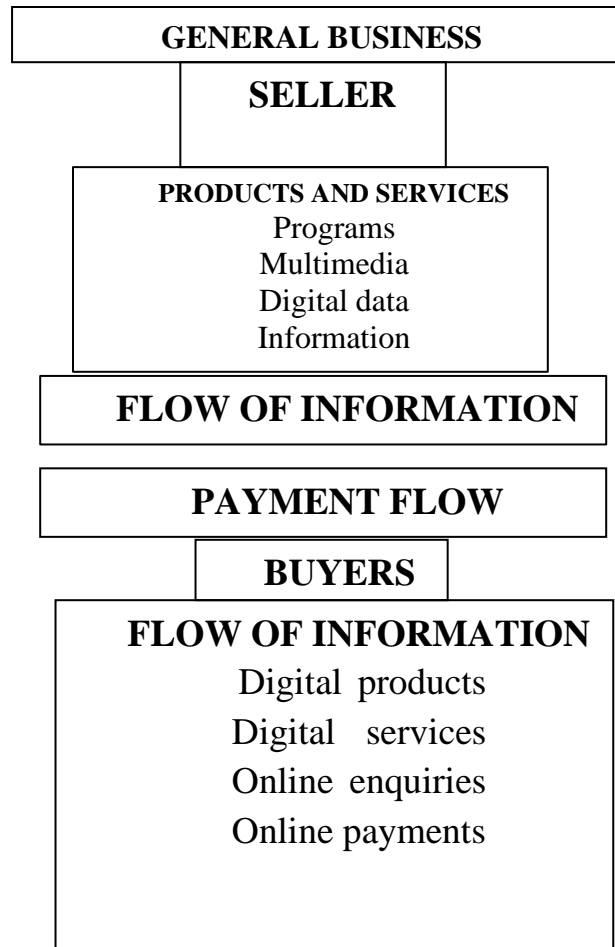
WAN– Wide Area Network is the combination of two or more LANs and in a specific geographical area. It may be for some local division or for definite geographical location. It can have more than 500 computers.

MAN– is the Metropolitan Area Network and extends in a Metropolitan city. It may have an area of around 100 to 150 square kilometers. The links may be through cable wires or telephone wires or through satellite links.

VAN– is the Value Added Network. It provides various Value additions and it is really a Value Added Network. Facilities such as e-mail, time, alarm, calendar, schedules, engagements, e-business, authentication, security are some example for the values provided by VAN.

SECTION –C

1. Describe the general business transactions using E-commerce?



2. Explain the internal and external force in E – commerce?

Modern business mostly depends on the technological improvements. The E- commerce business practices can be classified in the various headings. Some of the main headings are E-mail, EDI, EFT, logistic manufacturing, video – conference, co – ordination logistics etc. E-Commerce development depends on various forces in the present day world. They can be classified into two major headings.

1. Internal forces ;and
2. External forces or environmental forces.

Internal forces

Those factors that emerge within the organization and they are controllable by the management and can be applied by the management as and when required.

External forces

Those factors that emerge in the competitive business environment due to various developments and changes.

The business system operates within the framework of the forces that are the part of environment. The factors may directly or indirectly affect the business systems. External factors such as culture, society, legal position, economic conditions etc., influence the business system, but the organization are having least control over these factors. The factors such as suppliers, intermediaries, customers etc., can be controlled to certain extent by way of strategic planning and execution of these plans.

3. Discuss the factors inducing explain in E – commerce.

The prime factors that have induced the expansion in the field of E-Commerce are as follows:

- a) Demographic conditions;
- b) Changes in consumer wants/ needs;
- c) Local Economic conditions;
- d) High competitions / global competition;
- e) Rapid development in the field of computer technology;
- f) Increasing consumer awareness on goods and services;
- g) Changes in the marketing strategies; and
- h) Globalization practices followed in many countries.

The impact of globalization has also fuelled the development in the field E- Commerce. The functioning of the organization have significantly changed the business factors that have fuelled the growth in E- Commerce are;

- a) Reduction of distribution cost;
- b) Globalized markets;
- c) Lower product cycle periods;
- d) Increased responses from the consumers and intermediaries;
- e) Rapid use of the field of computer network;

- f) Need for taking alternate decisions in the wide market; and
- g) High cost of clerical and paper transactions.

4. Describe the major factors for E-commerce frame work?

E-commerce framework depends upon the following main aspects;

1. Public policy, legal and privacy issues.
2. Standards required for documents, protocols and transactions with reference to the technology.

The business activities have to be within these two pillars. The usual business standards that are expected in E-Commerce are:

- a) Infrastructure for usual business services such as authenticity, security and electronic payments directories etc.
- b) Infrastructure for communicating and distribution of information.
- c) Infrastructure for multimedia content and network publishing in business field.
- d) Infrastructure information superhighway (I-way) through channels.

E-Commerce is supported by application and infrastructure and both are the pillars of E-Commerce. Buying and selling process are considered as usual business transactions; sending and getting information is considered as distributions of information; multimedia content and network publishing are used for creating a product and the product information is to be communicated to the buyers. Infrastructure such as telecom, cable TV, wireless and internet are considered to be the part of information superhighway.

Information super highway

The highway can be compared to that of the road highway, which has to tracks or four tracks. In some roads, only one vehicle can run at a time and the opposite side vehicle has to wait until this vehicle reaches the opposite side. In lanes, only one vehicle can travel that to at one direction at a particular time. In some roads, two vehicles can travel at a time, each in opposite directions, there are some roads, which can accommodate four or six vehicles in each direction, that is, and they may be having six or eight lanes. In smaller roads, only two or three vehicles can travel at a time or the capacity of the vehicles may be limited.

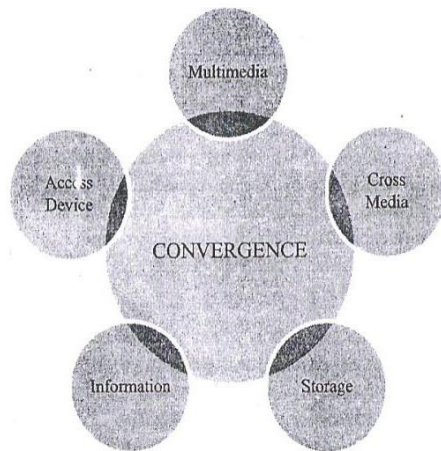
In some roads, only two wheelers can go, in some four wheelers and in some broad highways, eighteen – wheelers or even very big vehicles can travel with additional modifications and fittings. This is due to the availability of space in the road as well as the road with separate spaces for each vehicle or lanes for each vehicle. In the telephone equipment, audio signal are used and the sound is transmitted from both sides. In the radio, audio signals are used. In digital games audio, video and software are used. In electronic books, there are text, data, graphic, music, photography and video. Thus, the highway should be in such a way that it must have facilities to transport various kinds of vehicles, such as, text, audio, video, photo, graphics, music etc., without delay. Information highways are designed in such a way that they can allow transportation of various types of components at the same time without deviation or without any delay.

Creation of vehicles multimedia enables to store the vehicle or object in storehouses. The vehicles are used for transportation through highway system. The data or the multimedia documents are stored as electronic documents in servers. They can be distributed from one warehouse to another / server through messaging software – E. mail, EDI and File Transfers. Creation of vehicle multimedia ensures safe delivery and payment system. There will be an interrupted flow of information and technical standards will be maintained.

5. Explain the importance of digital convergence.

Digital convergence

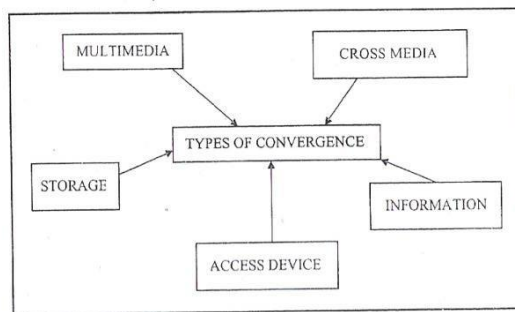
The transactions between seller and the buyer and the related environmental operators are done through the digital media. The digital media makes it possible for processing and transmitting data in bits. The data or information can be formulated in understandable way by digital technology and transmitted in digital technology. The receiver has the ability to decode the information and understands the information. Thus, digital technology has assisted for the expansion of transaction in the present day business.



The characters, numbers, sounds, pictures, figures and diagrams are manipulated by the digital technology. Hence, the information are stored, combined and manipulated by the digital technology. Hence, the information can flow efficiently without loss of time and reach the directed targets with more emphasis. The convergence of digital aspects can be divided into various headings. They are: (1) content convergence (2) Transmission convergence.

Again, they can be classified in the following heading:

- a) Multimedia convergence;
- b) Cross media convergence;
- c) Storage convergence,
- d) Information convergence, and
- e) Access device convergence



Content convergence

Content convergence means the convergence of data in the digital forms. These data can be processed, stored, retrieved. Enhanced, converted and compressed. This technology helps industries such as newspapers, book publishing etc. the data are stored in databases and the browsers help to access data without any delay. The network infrastructure has enabled for the smooth flow of information from the databases,. The business activities are made simple by this content convergence.

Transmission convergence

Transmission convergence is the concept of transmission of data from the information provider to the information – needed person. The activities are converged in digital technology. The data are compressed and transmitted through telecom wires. Cables and wireless technology. Information highway is the new name given for the transmission convergence at present. The computers are connected through this technology. Input devices, output devices, high – speed devices, etc., are attached for the purpose of transmission of data at high speed. The transmission technology has developed due to the innovations in the field of LAN, WAN.

6. Explain the various types of E-Commerce.

E-COMMERCE – TYPES

E –Commerce is divided into **three categories**:

1. Business to Business (B2B)
2. Business to Customer (B2C)

3. Customer to Customer (C2C)
4. Business – within – Business (Intra Company).

Business to Business (B2B)

Though commerce is having the consumer as the main target, the wholesalers, agents, retailers and other intermediaries cannot be underestimated. Business – to – Business type of E-Commerce comprised of many major commercial activities and these activities are conducted over networks. Financial transactions, purchase orders, bills, payments, etc., were earlier done through private networks. This portion of E- Commerce is restricted to the known partners and the methods used are secure procedures based terms and conditions. These private nets assisted the closed circles only and hence the role of outsiders was restricted. However, at present, the Business – Business type has developed to magnificent level. Many modern electronic based technologies are used for this type of transaction. Business-to-Business E-commerce is done between business units. Internal connects all business.

Consumer to Business (C2B or B2C)

Internet technology and electronic mails are the forerunners in the fields of consumer to business category. The individual browse for various products and shop using their credit cards. They can also give orders though e-mails. It is a simpler method for getting information and for selecting the alternatives. It is just like the catalogue shopping. It is based on internet technology and the consumers have unrestricted access to the products and unauthorized access by the strangers and intruders on the public network. The main advantage of the customer to business type is that the consumer gets many varieties choices and can decide on their own or with the help of alternates that are available in the network itself. Further search engines and recommendation networks also help the consumers in making the buying decision.

Customer to Customer (C2C)

This type of E-Commerce is gaining momentum. The internet as well as the agencies engaged in maintaining servers and web allow consumers to advertise on their sites. The sites allow the consumers to provide information about their products and help them in selling their products. They are classified according to similarities. For example, if a person wants to

sell his car, he can approach the site, get the permission and advertise about his care for sale with required information. The sites act as a platform for displaying the consumer's information. The consumer who is willing to buy the car can see the information in that site and can go for purchasing the second hand car through the web.

7. Examine the concepts in data communication?

E –COMMERCE AND DATA COMMUNICATION

The information must be delivered to the individuals and business firms, who use them and it must be delivered in a timely fashion. The information must be transmitted from one location to another. This process is called data communication. A study is needed in relation to hardware, software and procedures used in information communication. Communication is the basis of automation. Advances in communication technology combined with evolution computer technology have made much of the progress in this field. E –Commerce consists of telecommunications, data communications and various media communications.

Data communication system:

There are five basis components in data communication system. These components may change due to usage and applications. The components that are generally used in E-Commerce are:

1. The sending or originating computer. The originating computer or the terminal has data to transmit. The data many consist of a file on a disk or may be entered on a keyboard and transmitted as it is typed.
2. The data communication device attached to the sending computer covers the data into a form that can be transmitted.
3. The communication channel or link carries the data from one place to another. There are many possible communication channels including telephone lines and microwave relay systems.

The data communication software: Modem

Computer applications including data communication require both appropriate hardware and software. Specialized data communicate software is required to set up a communication link between two computers and to transmit data. The data communication software performs several

jobs. It sends the data at a proper speed; if the receiving and sending computers do not agree on communication rate, the receiving computer will not be able to understand the communications. Another job is to monitor software for communications also store telephone numbers, Modem commands and other critical settings. These parameters reside in a dialing directory, so the numbers need not be re –entered. well – designed communication program makes it easy to select a remote system from the directory and begins connection procedures that generates a high- pitched answer tone, to which, the use modem response with a burst of tones of its own. This interchange is called as handshaking. Once two modems are locked on to each other, most communication programs display a connect message on screen. There are various data communication concepts that are to be understood for transmission of data.

Concepts in data communication

1. Common ground
2. Units of measure
3. Communication rate
4. Digital and analog communication
5. Parallel and serial communication
6. Synchronise and asynchronous communication
7. Protocols and buffers
8. Detecting errors.
9. Simplex, half –duplex and full duplex communication.
10. Multiplexing.

8. Describe multimedia servers with examples.

Multimedia servers

Multimedia server is a combination hardware and software that converts raw data into required information and then „dishes out“ the information to the required clients when they need it. The servers capture data, process manage, and deliver texts, audio and various media contents. The servers display, create and manipulate documents and deliver the documents to the end users.

Delivery or transport of information in E-Commerce

Telecom, cable television, on –line servers, wireless communications are principally providing transport to the information. There are computer networks to transport the information. There is a mix of various architecture of many forms of high – speed network transport. The normal information delivery methods, that are available, are the long distance telephone cable lines, cable television, co – axial, fiber optic, satellite lines, internet, commercial on –line service, cellular and radio networks, paging etc.

Information access devices:

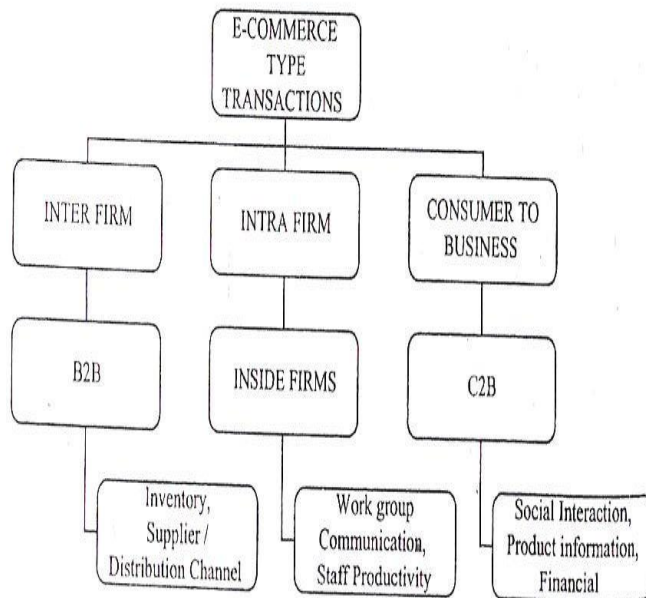
There are many varieties of information access devices for different types of consumers. The computers with audio and video capabilities, personal computers, multimedia personal computers, Mobile computing –notebooks and CD – ROMs equipped computers are the normal information access devices in E-Commerce. There and games systems, personal digital assistant such as pen based computing voice driven computing software agents etc., for quick access to information.

9. Explain the inter organizational process in E- Commerce.

Inter – organization

Inter – organizational that is Business – to – Business type, refers to the transaction that take place within various business units. The transactions may be between the wholesalers and the retailers, producers and the suppliers or customers“ bank and suppliers“ bank. Thus, the inter-organizational type acquires more significance in E-Commerce types. The inter–Organizational types can apply in various business fields. Some of the applications are given below.

1. Inventory Management,
2. Supplier Management
3. Distribution Management
4. Payments Management
5. Channel Management, and
6. Transaction Management



Intra – organizational

Intra organizational type refers to the transactions that take place within the organization. Various departments inside the organization are to be inter – linked and the production process is to be efficiently carried out with out delay and a cheaper cost. The activities should aim improved quality at reduced cost within the stipulated time. This type can be classified again as follows:

1. Work group communications
2. Productivity of the sales force, and
3. Electronic publishing.

Customer to Business

Customers are the real beneficiaries in the E- Commerce technology. They acquire more information and get more knowledge by this digital media. Their choices have increased and they can get quality products at a cheaper price. The goods can be according to their specifications and can get unique products in time. The normal transactions that are carried out in this area are:

1. Social interaction
2. Information relating to purchases
3. Product information

4. Financial information
5. Financial management and payments.

In addition to the above, there are also inter- mediaries in E-Commerce.

10 Write a note on „Global Information Distribution Network.

There are two high speed global information distribution networks. They are fiber optics long distance networks and satellites

Long distance Networks:

Long Distance connectivity is available through coaxial or fiber cable. These cables are owned by long distance or interchange carriers (IXCS). The long distance carriers are focusing their attention on wireless technologies. They are of the opinion that the network would enable them to provide long distance services to cellular users.

Satellite Networks:

There is tremendous increase in the role of satellite network at present. Introduction optic fibbers has an impact on the distribution system. Fiber optics provides higher bandwidth than satellite. It is also immune to electromagnetic interface. Satellite networks are accessible from any spots on the global. It can provide broadband digital services, voice, data, and video on many points. At present, there are Very Small Aperture Terminal (VSAT) satellites, which are using a narrow beam to focus the transmitted energy on a small geographical area. VSAT is used for connecting hundreds of retail out lets by large companies. It is becoming prominent in retail business.

ii. Write a short note on „Internet Governance Society”.

Internet is not a single network. There is no single organization to oversee all the actions of Internet. Inter NIC (www.Internet.net) Registers companies. Internet Society has various committees such as Internet Architecture Board (IAB), Internet Engineering Steering Group. Internet Engineering Task Force (IETF), area directors and various working groups.

IETE Working Group

Internet engineering task force is divided into various functional areas. They are:

1. Application
2. Internet
3. Network management
4. Operational requirements
5. Routing
6. Security

7. Transport and
8. User services

All these areas have various working groups. They are having Birds of Feather (BOF) sessions. BOF have the same goals as working groups. However, BOF has no charter. They have to provide an informal forum for discussing the latest trends in the market place.

Commercial Model

The Commercial Model Internet access has higher access fees. It requires higher industrial strength. High Speed Leased Lines are used for commercial models. High quality service is required and the consumer loyalty may also be high.

Consumer Model

The consumer model Internet access has lesser access fees compared to that of commercial model. Industrial strength is somewhat required. There are only show dial-up connections. These models have consumers of content and the consumer loyalty may often change.

Advantages – Users

The uses of Internet in the present globalized economy cannot be simply sidelined. It has become a part and parcel of human life in many countries. Some of the advantages of Internet are listed below:

1. Communication
2. Group conferencing
3. Tele-marketing
4. Multimedia services
5. Conferencing
6. Negotiation
7. Decision support system
8. Mailing list
9. List server
10. Bulletin board
11. News group directories
12. Research collaboration etc.

Other Uses

Some other important uses of Internet are the distance education, text based e-mail, multimedia e-mail, citation access, full text database, virtual libraries, access of data through Internet tools such as Gopher, www, file transfer remote log in resource discovery services, news gathering, access to operation, research tools, statistics, simulation, visualization tools, resource sharing, access to printers and fax machines.

12. Write a short note on National Level Independent ISPs.

The national level independent ISPs are competitors for the telecom service providers. They are connected to the backbone to have access. The national GSP providers concentrate on providing services in WAN. Hence, they compete with the Tel Co and cable services. Performance system Interaction (PSI), Advanced Network area Services (ANS) etc. are the major service providers in US.

IPSS	country
PSI	US
ANS	US
UUNET	US
EVNET	Europe
SWIPNET	Sweden
Data Link	Finland
Pipe	United Kingdom

These service providers built large Public Data Networks (PDNS) based on TCP/IP like Telnet. Commercial Internet Exchange (CIX) has been used for inter connection. The CIX is the entry point for traffic into the internet. The ISP transports the Internet Traffic across its own network to a router with a connection to the rest of the Internet.

Advantage of National ISPs

1. National ISP provides integration and consultancy services.
2. Connect all of its company sites instead of maintaining the connection internally.
3. It is maintained in star topology.
4. It requires only one leased line from each corporate location to the nearest ISP hub.
5. The network management responsibility is given to the skilled personnel the connectors are reducing unnecessary overheads.
6. The reliability of the network increases.
7. Provides professional news and information.
8. Provides video conferencing facility.
9. Provides gate way that load non-IP traffic in to the IP packets for transmission across the internet.
10. Moves heavy traffic from the private network an Internet access part.
11. ISP enables users to provide and receive open system interconnection traffic over the Internet.

Regional Level ISPs

Regional level ISPs cover only limited area. They are covering areas lesser than that of national levels ISPs. The regional level ISPs have different access points and these points are concentrated in their areas. Some of the regional ISPs in Us are Junket, CERF net, etc.

Local ISPs

The level ISPs provide service in a smaller confined area. They serve within cities or within a specific area. They sublease the circuits of regional or national ISPs. Customer by these local ISPs as they provide quality services and support. These ISPs change quickly according to circumstances.

The local ISPs run Bulletin Boards, free nets, libraries etc. exchange of messages, information and programs are allowed between member users. Many local ISPs provide free access to libraries. The I-Way communication may further increase the role of Internet Service Providers globally.

13. Explain the Internet Service Provider-LOGISTIC.

They are five stages to be followed for becoming an Internet Service Provider.

1. Selecting a National/ regional ISPs.
2. Setting up local infrastructure.
3. Setting up software and dial up connection line.
4. Technical support and help desk management.
5. Targeting and keeping customer.

Selection of a National/Regional ISP

The local ISP initiator has to go in for the search of available National/Regional ISP in the area. The regional ISP effectiveness depends on:

1. Speed of the connection.
2. Reputation of the vendor.
3. Capacity of this regional ISP.
4. Cost of connects to the backbone.
5. Number of pops(point of presence)
6. Type of application used.
7. Bandwidth requirements.
8. Customer service.
9. Price / Benefit analysis.

Setting Up a Local Technology Infrastructure

The architecture for local technology should be carefully set up. A local server needs capacity to handle 30 customer systems.

Points to be noted

- a) Selections offer Router-Modem, Network Interface Card (NIC) and a small PC running the rouser software.
- b) Selecting a terminal server.
- c) Host protocols such as TCP/IP SLIP/PPP. ISDN, dial up access.
- d) Terminal points.
- e) Terminal server.
- f) Terminal connections.

Setting up Software Dial up Connector

The user have to access the internet service such as email, use-net news, FTP, TELNET etc.,

- 1) Gopher server service.
- 2) www server service.
- 3) FTP archive server.
- 4) Mailing list server.

Technical Support and Help Desk Management

The customer requires technical support and following activities.

- 1) Documentation-manual.
- 2) Telephone support.
- 3) Training and support.
- 4) Ongoing communication.
- 5) Technical enhancements.

The help desk management activities are to be followed by the local ISPs

- 1) Network operation center help.
- 2) Staffed round the clock.
- 3) Tools and organization.

Getting customer

The developing ISPs have to develop strong marketing strategies and program to support future growth. The must have strong market position. Success of these provides depends on their capacity in retain the existing customer ad getting new users.

UNIT-II

SECTION-A

1. Define „WWW“.

World Wide Web (WWW). Web means to a specific kind of internet interface. The web documents contain links that lead to other web pages. CERN high-energy physics. Research Centre in Switzerland developed web. It is a component of internet. Web page is the fundamental unit of web. It contains link to other web pages, graphics and audio files and other Internet services.

2. What do you mean by „Web browser“?

Web browser is software that provides a friendly interface on the web. It display the web page and moves between the sites. Examples of WEB browsers: MOSAICA, Netscape Navigator, internet Explorer, Google Chrome and Mozilla Firefox etc.

3. What is a „Web Page“?

Web page is a document on the web. It is called the homepage. There may be various links in the home page. Browser is a software program designed to provide an interface on the web, which displays web pages, move between websites. It helps to save, download and copy and print web pages.

4. What do you mean by „Brokerage and data management“?

Information Brokerage and Data Management provide service integration. Due to the increasing resource fragmentation the notion of information brokerages has developed. Notion of information brokerage represents the intermediary between the customers and information providers. These intermediaries provide service integration at a low price, fast service, and profit maximization for client.

5. What are Firewalls?

Firewalls is the filter between the private network and the internet. It keeps the firm's network secure from outside intruders. It allows the authenticated users to access the data or to the internet. Firewall is a software program that allows the authenticated users with some characteristics to access to the protected database or network. Only the insiders have the full access to the data. The outsiders are given access on selective basis. The authentication will be in the form of user name and password. It acts as a wall between the secured intranet and the unsecured internet.

6. What are URL?

Uniform Resource Locators are the strings that locate the files or text pointed out by the pointers. URL is the „libraries and locations“ on the shelf. The URLs are the strings used to as addresses of objects on the web. The address is unique and may be used by any other internet user to send mails etc.

7. What does „Online retailing“ mean?

Online retailing is the electronic retailing channel which retailing activities are carried out. Online retailing activities are attracting more significance due to the advancements in the field of internet technology.

8. What are Customer-Oriented applications in E-Commerce?

Retailing is the end business transaction in the business chain or supply link between the manufacturer and the consumer. It has become a tendency to get products at doorsteps due to the fast changing competitive world. The concept of retailing is slowly changing due to the innovations in the field of internet technology. The services such as advertising, designing a product manufacturing etc., are undergoing rapid changes in this present day business environment.

9. What is meant by „Home Shopping“?

Home shopping is related to the concept of online retailing. The customer need not go to the market physically. Just by sitting before his PC, he can select the products, compare the price, quality choices and order for the products. The only physical transaction that takes place in this process is the receipt of product in his home. Many companies through home shopping have generated huge revenue. Online retail units have been introduced by various organizations to enable a customer to enter the buy through credit cards. The retailers are aware of the future potential of online home shopping.

10. What does „Search for Information“ mean?

Decision Making requires lot of information. Information search is the degree of care, precaution, perception, and effort directed towards obtaining required data relating to a product or service. In online markets, the outcomes may be similar to that of traditional ones but the process of reaching the information differs significantly. In commerce, the search process represents an area that must be better understood before making any design.

11. What are „Information brokers“?

Intermediaries in the E-Commerce are the information providing brokers. The online services are creating a segregation of consumer by the computer platform they run. Some service providers use fancy facades only to subscribers. The user must have a personal computer, a modem, a mouse, and Graphic user interface and multimedia peripherals. The present online service providers allow maximum free information at an inexperienced access. There are provisions to access university or general libraries, check stock quotes, read newspapers or watch a part of movie.

12. Define „Electronic payment system“.

Modern business is becoming more complex due to the existence of more competition and availability of more products in the global market. These places of transactions and payments may differ due to various reasons. A virtual banking system is needed to achieve this payment system. The earlier system followed by the buyers were cash payments, payment by cheque, payment by demand draft, payment by bills, credit card, debit card or electronic fund transfer.

13. What is meant by „Secure Electronic Transaction“?

Secure Electronic Transactions are used by the credit card organization. In this transaction, encryption is used for maintaining the confidentiality in the transactions. Digital signature is used for the integration of data. SET provides identity authorized purchasers, verify validity of account, identify legitimate payment branches for merchants, track sales for whole purchases and validate merchant's credit policy.

14. What is meant by Electronic Fund Transfer?

Electronic Fund Transfer is the transfer of funds initiated through an electronic terminal, telephone, computer or magnetic tapes so as to order instructor authorize a financial institution to debit or credit an account. It is different from the conventional financial payment system. There is no physical delivery of cash, checks or pay orders.

15. Mention the types of Digital Token.

Electronic token or digital tokens are of three types. They are Electronic cash or real-time, Electronic debit or prepaid and credit or post-paid.

16. Mention the Characteristics of E-cash.

1. Monetary value.
2. Inter operability.
3. Retrievability.
4. Security.

17. What does Electronic Checks?

Electronic token includes Electronic checks. The electronic checks facility is introduced for the purpose of accommodating transactions between individuals and business firms where payment is made on credit basis or in any form other than cash.

18. What are „Smart Cards“?

Smart card is a stored value card. It is a replacement to ATM, debit, charge and credit cards. Smart card carries out the functions of the above side cards. It is a plastic credit card containing a microprocessor and a storage unit. The smart card gives access to STM, debit facility, credit facility, charge facility and the electronic purse facility. Monetary values can be loaded in this card and it acts as an electronic purse. Cash management, foreign exchange services, transfer of funds etc.

19. What are „Credit Cards“?

The payments to the sellers are also made online through credit cards. These credit cards are the normal cards that are now in circulation. Master and visa are famous credit cards that are in usage. The transactions through credit cards are secured and are helping in various angles to the buyer as well as the seller.

20. What are „Third party Processors“?

The purpose of verifying electronic micro transactions, the customers register with a third party on the Internet. Verification process is carried out in the third party processor. They depend on existing financial instrument and require the online involvement of at least one additional party.

SECTION-B

1. Explain the features of WWW.

1. WWW is platform independent.
2. Available all over the world.
3. There is client server architecture.
4. Opens students/ vendor independent.
5. Integration of legacy systems.
6. Millions of users.
7. Quick and easy access to information.
8. Quick retrieval of information.
9. GUT application creation is very simple.
10. Development of applications is quick.
11. Multi protocols have common interface.
12. Support of Hypermedia.
13. Computing is distributed.
14. Cheaper access cost.
15. Reliability.
16. Secure connections.

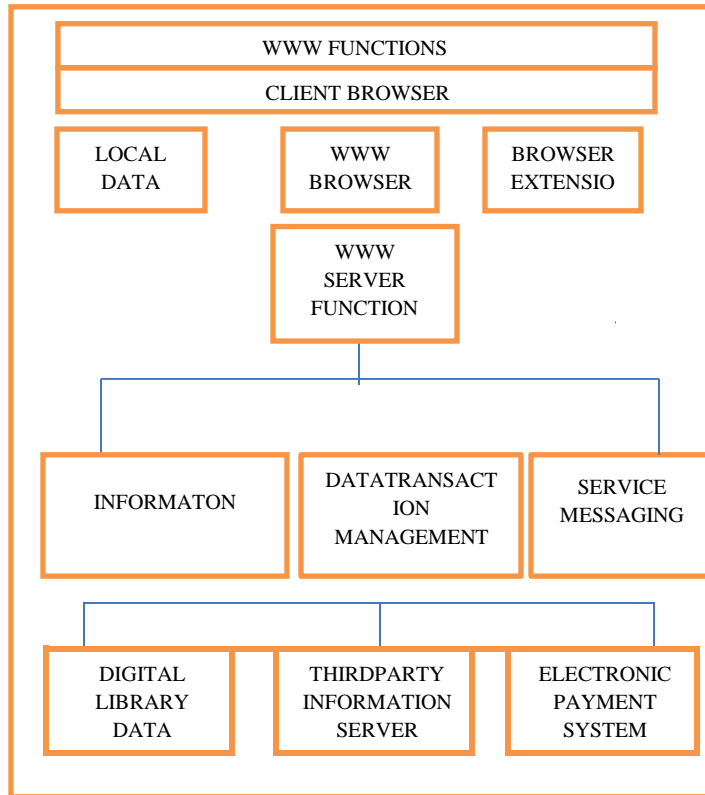
2. Examine the architecture of www.

The WWW architecture has three service aspects. They are:

1. Client Browser.
2. WWW server function.
3. Third party services.

Client browser provides local or specific data by has mosaic or WWW browser and browser extensions. It is fixed on the user's PC or workstation. It provides interface to the various types of contents.

Web servers provide information retrieval service, data and transaction management and secure messaging.



The third party services include the digital library of documents, data servers, information processing tools, electronic payment servers etc.

Web architecture components can be divided into three parts. They are:

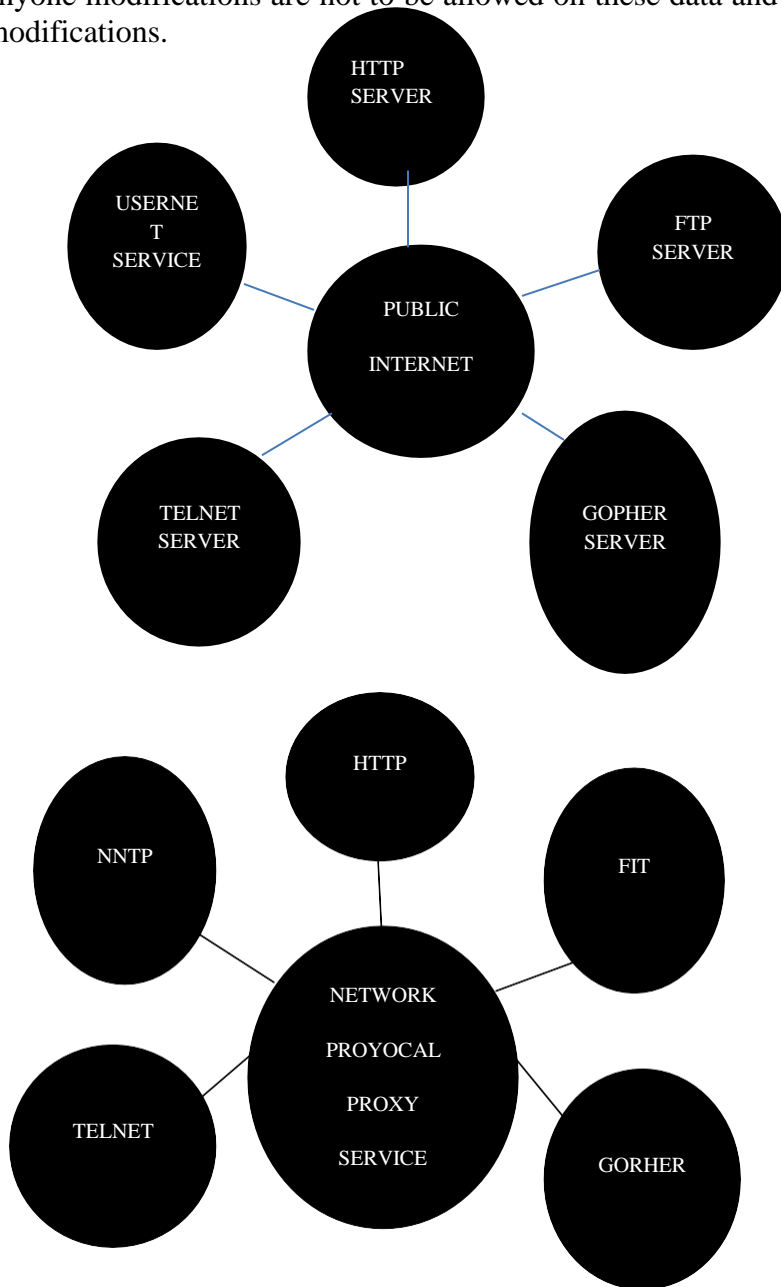
1. Hypertext Mark-up Language (HTML)
2. Hypertext transfer protocol (HTTP)
3. Common gateway interface (CGI)

Web browser is the software that enables the users to access the database. It is a graphical interface between the user and the server or the provider. HTML is the Hyper Text Mark-up Language that is used for formatting web pages and for hyperlinks. HTTP is the Hyper Text transfer Protocol that enables communication between the web server and the clients. CGI is the Common Gateway Interface that helps to invoke programs from the web servers

MODEL WEB ARCHITECTURE
CLIENT BROWSER
TCP/IP BASED NETWORK
MESSAGING, DATA MANAGEMNT
THIRD PARTY SERVER
DATABASES
CONTENT
SOFTWARE APPLICATIONS

3. Explain in detail about the different types of Internet Data Transaction.

1. **Public data:** these data have no restrictions regarding security and can be ready by anyone modifications are not to be allowed on these data and hence should be protected from modifications.



2. **Copyright data:** These data are not secret data but and having copyrights. The user has to play for the use of these data.

3. **Confidential data:** These data contain document6s that are treated as secret. Public access is denied to these data.

4. **Secret data:** These data are considered secret and to be maintained with more confidentiality.

Generally all types of data are sensitive in nature as public access to all data may lead to fraud and misuse. Privacy class may also to be considered before permitting access to any data.

4. Explain the Hypertext Publishing.

Hypertext is a very simple concept based on association of nodes through links. It is a part of information management. In this approach, the data are stored in a network of document called as links. The links represents the relationship between nodes. Mode represents a single concept or idea. Nodes can contain text, graphics audio, video, images or programs or documents and links are pointers. The nodes are meant to be viewed through an interactive browser, and can be manipulated through a structure editor. Reference or author is the node from which link originates. Referent is the node at which the links ends. Activating link creates the moment between nodes. The link may be bidirectional. It can be a specifications elaboration, membership etc. The capability of the web lies in its ability to produce complex referential bodies.

5. Explain the merits of ATM.

1. ATM provides 24 hours service.

ATMs provide service round the clock. The customer can withdraw cash up to a certain limit during any time of the day or night.

2. ATM gives convenience to bank's customers.

ATMs provide convenience to the customers. Now-a-days, ATMs are located at convenient places, Such as at the air ports, railway stations, etc. And not necessarily at the bank's premises. It is to be noted that ATMs are installed off-site. (away from bank premises).As well as on site (installed within bank's premises).ATMs provide mobility in banking services for withdrawal.

3. ATM reduces the workload of bank staff.

ATM reduces the work pressure on bank's staff and avoids queues in bank premises.

4. ATM provides service without any error.

ATMs provide service without error. The customer can obtain exact amount. There is no human error as far as ATMs are concerned.

5. ATM is very beneficial for travellers.

ATMs are of great help to travellers. They need not carry large amount of cash with them. They can withdraw cash from any city or state, across the country and even from outside the country with the help of ATM.

6. ATM may give customers new currency notes.

The customer also gets brand new currency notes from ATMs. In other words, Customer does not get soiled notes from ATMs.

7. ATM provides privacy in banking transaction.

Most of all, ATMs provide privacy in banking transactions of the customer.

6. Describe the advantages of online retailing.

Online retailing has various advantages. These online retailers are redefining the retailing activities. Some of the advantages of online retailing are:

1. Lesser time and less space,
2. Mass customization,
3. Creation of supply chain,
4. Identification of specific needs,
5. Maintaining higher renewal rates,
6. High usage rates,
7. Low operating cost,
8. Minimum postage expenses,
9. Low paper transactions, and
10. Easier sales follow-up.

7. Explain the characteristics of Electronic Market Place.

An ideal electronic market place must have the following characteristics:

1. Larger number of buyer,
2. Larger number seller,
3. Independent evaluation facility,
4. Facility for customer dialogue and discussion,
5. Negotiation facility,
6. Bargaining power,
7. Availability of new product,
8. Choices-brands,
9. Facility to approach various sellers for competitive prices,
10. Redressed facility-dispute settlement

Economy of large-scale principle is also applicable to the electronic market place. It must be like perfect completion market. Improvements in computer technology may enable for a perfect competition in electronics market place. It may be the most sought market place in future due to the availability of choices. The user may understand price comparisons, Quality, Standards, etc. There may be possibility for negotiation and Bargaining. There may be satisfaction on the part of buyers and sellers. New products may be introduced as per the wishes of the users. Bank transactions will be made simple and secure. Dispute redressed forum may help the buyers and sellers to a maximum extent.

8. Explain the Importance of EPS.

Electronic commerce is linked to Electronic Payment System as the online consumers pay for products and services. Payments, especially prompt payment are the integral part of business system. The accounts of individual bank, companies and many other organizations are not able to account for prompt settlement due to delay in clearance, postal procedure, bank transaction aspects etc. The main aspect of electronic commerce is prompt and secure payment clearing and settlement of accounts.

Online sellers do not have face-to-face contacts are any other type of communication other than online contacts. However, they have to get the amount due to them from the online buyers. The method of payments to online sellers for the delivery of products and services

requires an in-depth study. Online payment systems should be secure and reliable. It must have low processing cost and should have global acceptance.

9. Write short note on Electronic Cash.

Electronic Cash refers to prepaid, shared value that can be used for Electronic purchases in lieu of cash. It is temper resistant and is early exchanged in electronic format. Electronic Cash maintains anonymity of the payer. The banks usually face some problems is tracking the authentic electronic cash nodes and coins without linking the purchase made. The concept of electronic cash is a new one in online payment system. It combines technology advantages with security and privacy. New markets are now being opened privacy. New markets are now being opened on the strength of electronic cash. The lack of trust in banking system, delayed clearing in settlement process and attitude of bank officials are some of the reasons for the existence of cash transactions in this century also.

Credit or debit cards have some peculiar features. They are:

1. The cards are not legal tender.
2. Merchants have the right to accept or refuse.
3. They are not bearer instruments or bills.

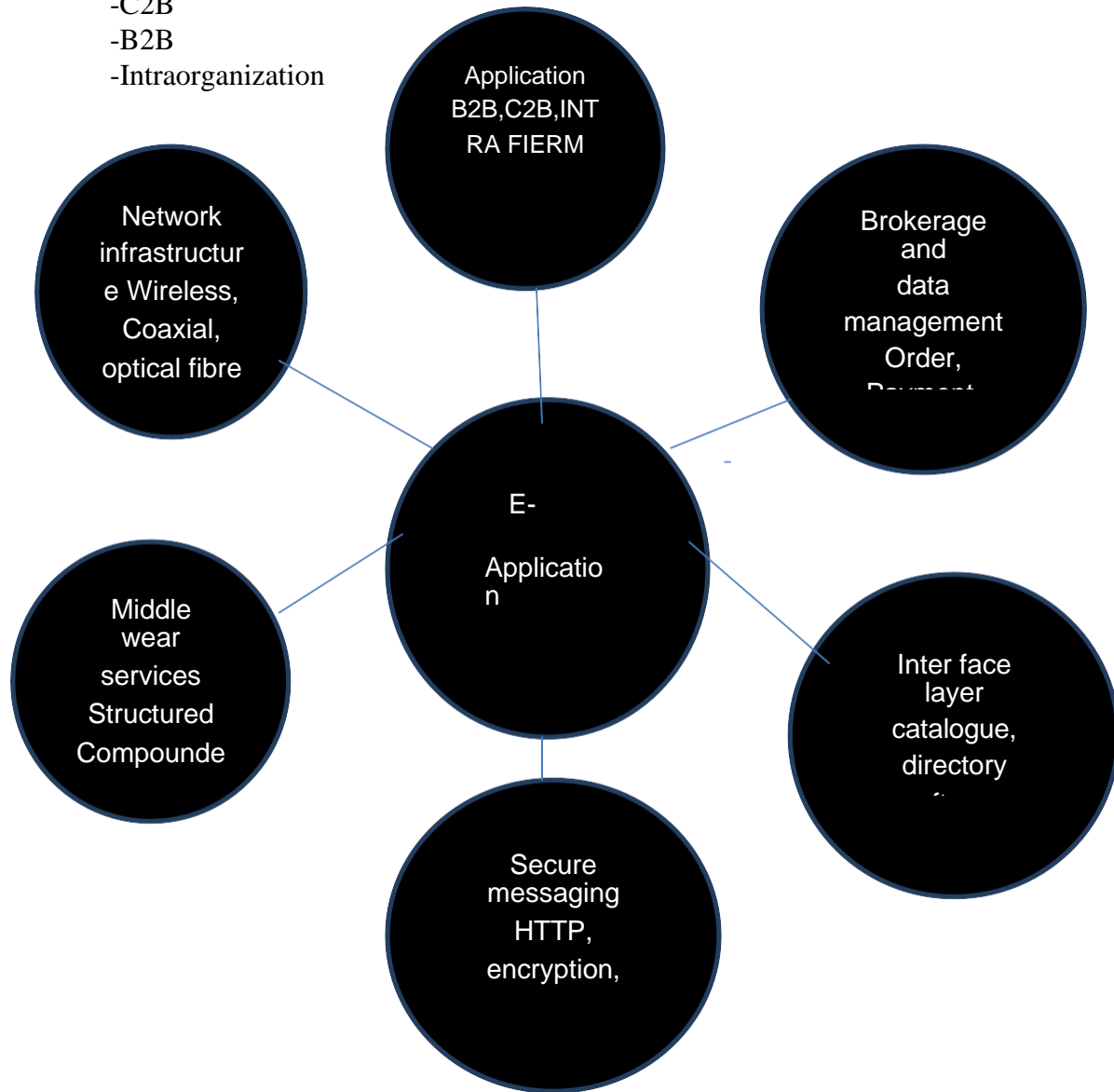
In spite of some drawbacks the credit cards are developing. The main reasons are the various types of services rendered by the providers of electronic credit cards.

SECTION-C

1. Describe the E-Commerce application architecture.

The functions E-commerce application architecture divided into six layers. They are: 1. Application

- C2B
- B2B
- Intraorganization



2. Brokerage and data management

- Order processing-e-mail order houses.
- Payment schemes- Electronic cash.
- Clearinghouse-virtual mail.

3. Interface Layer

- Interactive catalogue
- Directory support function
- Software agency

4. Secure messaging

- Secure HTTP
- Encrypted e-mail EDI
- Remote programming (RPG)

5. Middle wear services

- Structured documentation SGML/HTML
- Compounded documents OLE, Open Doc

6. Network infra-structure

- Wireless-cellular, radio, PCs.
- Wire lines-POTs, Coaxial, Fibre optics

It is to be noted that all these layers are used for a single transaction. Hence E-commerce is an integrated system consisting of technology and commerce.

Application Layer

Consumer to Business

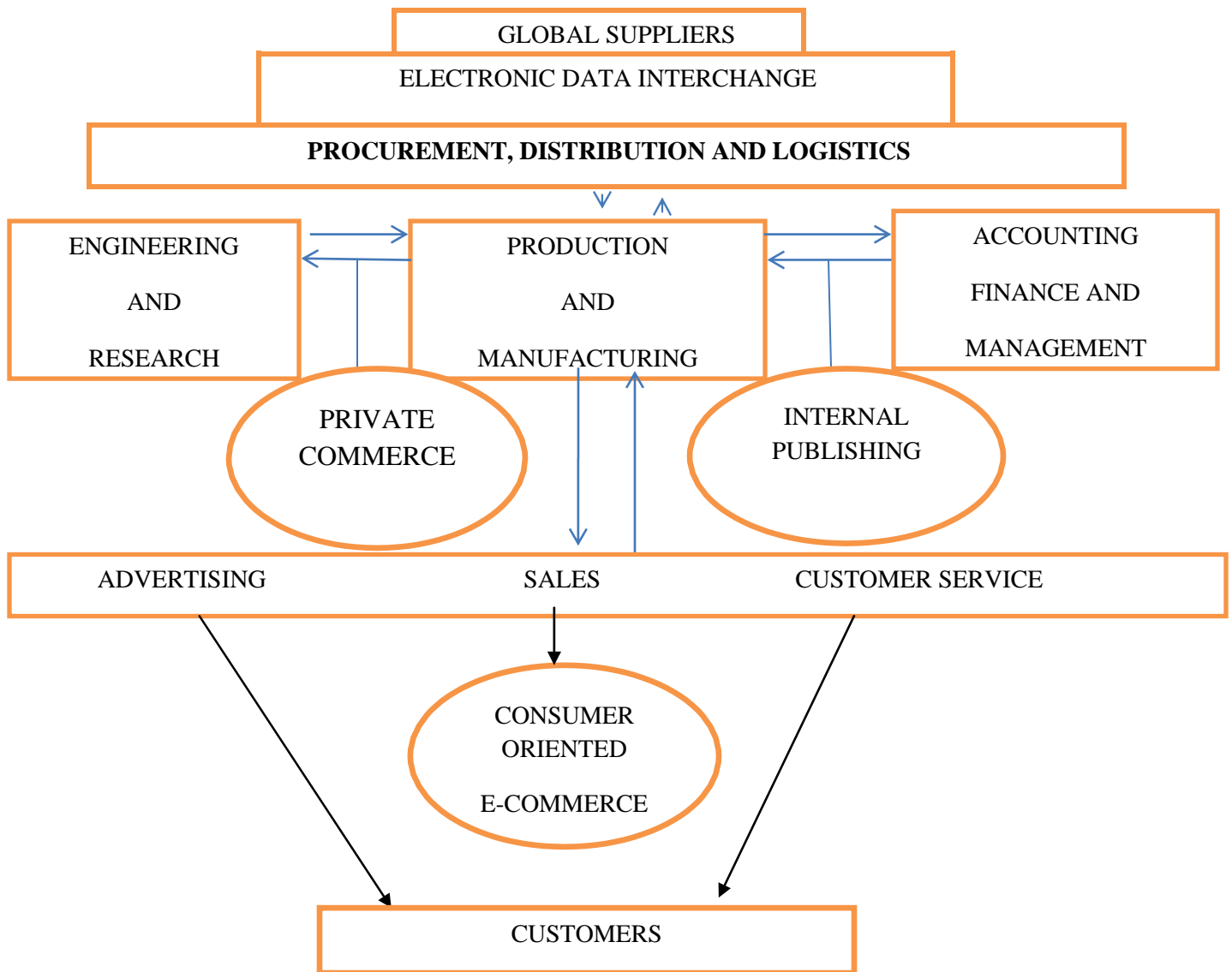
The transaction between a consumer and business is known as C2B transaction. It is usually known as the market place as the consumer meets the business only in the markets. The consumer gets knowledge about the products, price, quality etc. through electronic publishing, buy product or get services through electronic cash and secure payment system.

In these transactions, the term quality, content, distribution, etc., have different meanings. The E-Commerce has forced business firms to change their strategies for entering this new area.

It is seen that the global suppliers, through classic electronic data interchange enter E-Commerce field. Various processes benefit the customers.

Business-to-Business Transactions

E-Commerce enables the B2B transactions. These transactions are classified as market link transactions. Computer to computer communications are fast, economical, and dependable way to conduct business transactions by business firms, organizations and governments. The use of electronic data interchange and electronic mail are used for purchasing goods and services, getting information and consultancy services, submitting requests for proposal and receiving proposal in Business-to business transactions. Paying creditors or discounting bills without E-Commerce require lot of paper transactions with waste of time, money and other human resources. These transactions, if done through electronic commerce application in the electronic form, will be cheaper, less time consuming and reliable.



Brokerage and data management

Information brokerage and data management provide service integration. Due to the increasing resource fragmentation the notion of information brokerages has developed. Notion of information brokerages represents the intermediary between the customer and information providers. These intermediaries provide service integration at a low price, fast service, and profit maximization for client.

Online databases are migrating to customer information utilities. The consumer and information professionals have to keep up with the knowledge and ownership of all these systems. Information brokers are required while dealing with huge transaction in the network. As the number of databases have increased it has become complex and impossible to search data from these service providers. Information brokerage also addresses the issue by adding value to

the information. It helps to minimize risk. A chain is created, as the act of retrieving the information is the input for another transaction.

Data management is supported by the brokerage function. Various tools such as software agents, distributed querying generator, distributed transaction generator and the declarative resources constraint base and used. Business rules are also explained. The work and data flow. Software agents are used to implement information brokerage. The software agents are mobile programs and are also called as „healthy viruses“, „digital butlers“ and „intelligent agents“.

The agents perform tasks as per the instruction of the user. These tasks are performed in the electronic market place. These agents are capable of gathering information, resources, negotiating deals, etc. The agents are also termed as “Intelligent Agents” as they possess configuring plans. These agents provide alternates, and they do the actions on their own. The agents access the directory and search similar goods as per the orders. Some feel that these software agents are self-destructive and even may act like a computer virus.

Interface layer

This layer provides interactive catalogue, directory support function etc. Search to information is done in this layer and information is accessed. The process of search and access takes place in this layer. Interactive catalogues are the customaries interface to consumer applications, such as home shopping. Directories operate behind these scenes and attempt to organize enormous amount of data. These service make data from any server appear as a local file. Interactive catalogues deal with people. Directory support interacts direct with software applications. Directory need not have multimedia aspects as they work behind the screen.

Secure Messaging

Business issues usually require a secured environment. The messaging should be secure and fast. There should not be any delay. Integrated messaging: Integrated is a group of computer services that through the use of a network, sends, receive and combine message, faxes and large data files. E-mail, exchanged fax and EDI are the examples for the integrated messaging. Messaging is the software that lies between the user and the network infrastructure. It can also be a framework for the total execution of the portable application. Messaging is only an enabler of application to solve problems.

Uses of Messaging Services

1. Enables application to solve problems.
2. Provides solution for untrusted data.
3. Provides solution for formatted data.
4. Supports both synchronous and asynchronous message delivery and processing.
5. Store and follow method is adopted.
6. It is not associated with any particular communication process or protocol.
7. No pre-processing is necessary.
8. Well suited for both client server and peer-to-peer models.
9. Messages are treated as objects and then passed.
10. Can be for work group computing.
11. The ability to access correct information at the right time.
12. Can communicative not formatted data such as reports, letters and memos.

13. Can communicative non-formatted data such as purchase orders, slipping note and invoices.
14. Information is carried with the form.
15. Provides effective communication.

Problems

The problem with the messaging is:

1. Changes in technology.
2. Improper standards in technology.
3. No inter-operability between various messages.
4. Problem relating to security, privacy and confidentiality through data or encryption and authentication.

Middle Ware Layers

Middle ware layers are the ultimate mediators between different software programs that pass information. The need for the middleware was felt due to introduction of various products. The products and systems at present are not homogeneous and the problem of passing information came up. To solve the problem of interface, transformation and interpretation, the middle ware services came up. Further these service provided solutions for unlike platform. The middle ware services provide the following:

- a. Transparency,
- b. Transaction security and management, and
- c. Distributed object management and service.

Transparency is essential for dealing with higher-level issues. It is accomplished by using middleware services that helps a distributed computing environment. Transaction security management is essential to all layers in electronic commerce. Middleware provides standard TP and provides ACID properties such as Atomicity, Consistency, Isolation and Durability.

Distributed Object Management and Services

Objects are the combination of data and instruction acting on the data. It has certain functions and proceeds. In electronic commerce, a document is an object and it carries instruction and data. Hence, it can be said as document oriented technology. At present the document carries text, picture, video and audio hence may be said as „Compound Document Architecture“. The document presentation provides the ability to build applications from applets. It provides scalability and has capability of refuse and customization. The protocols are TCP/IP. It is also in use for Common Object Request Broker Architecture (CORBA) object linking and embedding OLE open DOC.

2. Explain Mercantile Process models.

MODELS OF MERCANTILE PROCESS

Mercantile process is the interaction model between consumers and merchants. A well-established standard process is necessary for the E-commerce model. Business is being done in the I-way. Measures to regulate credit card purchases have come up. The interest of consumers, sellers, banks and intermediaries are to be protected.

(i) Consumers Based Model

(ii) Seller Based Model

The business process model is online buying is from consumer perspective and it has three major phases various server activities.

I. The pre-purchase preparation phase.

- a. Search and discovery for a set of products.
- b. Product selection.
- c. Negotiation.

II. The purchase consummation phase

- a. protocols for flow of information
 - (i) Place order
 - (ii) Payment authorization
 - (iii) Report of purchase
- b. Documents associated with purchasing
- c. Negotiations, price, availability, delivery date

III. Post purchasing interaction

- a. Customer service
- b. Support to address consumer complaints products returns and product details

PRE-PURCHASE STAGE

The online purchase model should aim at consumer interest, which must provide all necessary information to the consumer. The relationship between pre-determined purchase and actual purchase need not be the direct. As in all other markets, there are various types of consumers, their buying patterns differ and hence a generalized strategy is to be evolved for pre purchase preparation. Some buyers visit online market more frequently but seldom buy products. Some visit few times but immediately buy products.

CONSUMER-ONLINE RETAILER MODEL

Pre- purchase preparation stage	Product search comparison Negotiations
Purchase Consummation Stage	Order Placement Payment Authorization Product Receipt
Receipt stage	Customer Service Customer Support

The pre-purchase process depends on:

- 1. Individual behavior
- 2. Nature of product
- 3. Purchase situation

The purchase deliberation may be defined as the elapsed time between the consumer's first thinking about buying and the actual purchase itself. Information search about the product takes more time. There is time for comparison of alternatives and price negotiation. These consumers have to take purchase decisions.

The consumers are of three types:

- 1. Impulsive buyers – quick buyers.

2. Patient buyers – purchase after comparisons.
3. Analytical buyers – doing various research activities before making a decision to purchase.

Impulse buying occupies a major role in online marketing. It also has a major share in traditional marketing. The patient buying process involves a specific time. The buyer examines various data, compares research before making a purchase.

The type of purchasing includes:

1. Specifically planned purchase.
2. Generally planned.
3. Entirely unplanned.

The specifically planned purchase is those purchases where the plan or need was determined earlier than before entering the store. The user goes to the specific product or service. In the generally planned service, the buyer enters the market with several plans but the brand, quality, price etc., are not determined earlier. Remainder purchase is that purchase was the shopper influence the buyer to buy a specific product by advertisement display etc.

The seller is in a position to influence the buyer inside the store. The online retail service provides a scan very influence the buyers inside their net by effective information loaded advertisement. There are many catalogue based selling directories, product information etc. To influence the buyer online. The technology also supports the search.

PURCHASE CONSUMPTION

A mercantile transaction is defined as the exchange of information between the buyer and seller followed by necessary payment. The method of payment is first to be agreed upon. The buyer and the seller have to interact by exchange the willingness, get authentication and verification, backed by a credit billing organization. There are protocols to approach organization as well as paying servers.

3. Discuss mercantile process-seller models.

The seller has to exit in the competitive online retail field. The cycle form „order to delivery“ requires easy management. When the orders are delivered, the company has to review the cycle and the cost involved. The cost should be minimum for the transaction. The efficiency of the seller lies in his ability to take the position of the low cost provider, the stress on services and the emphasis on responsiveness as well as developments. E-commerce transactions are always flexible. Order management cycle comprises of more traditional order to delivery cycle. There are several steps in order to delivery cycle.

I. Presale Interaction

1. Inquiry or order planning searches
 2. Cost estimates and pricing of production
- ### **II. Product, service – production and delivery**

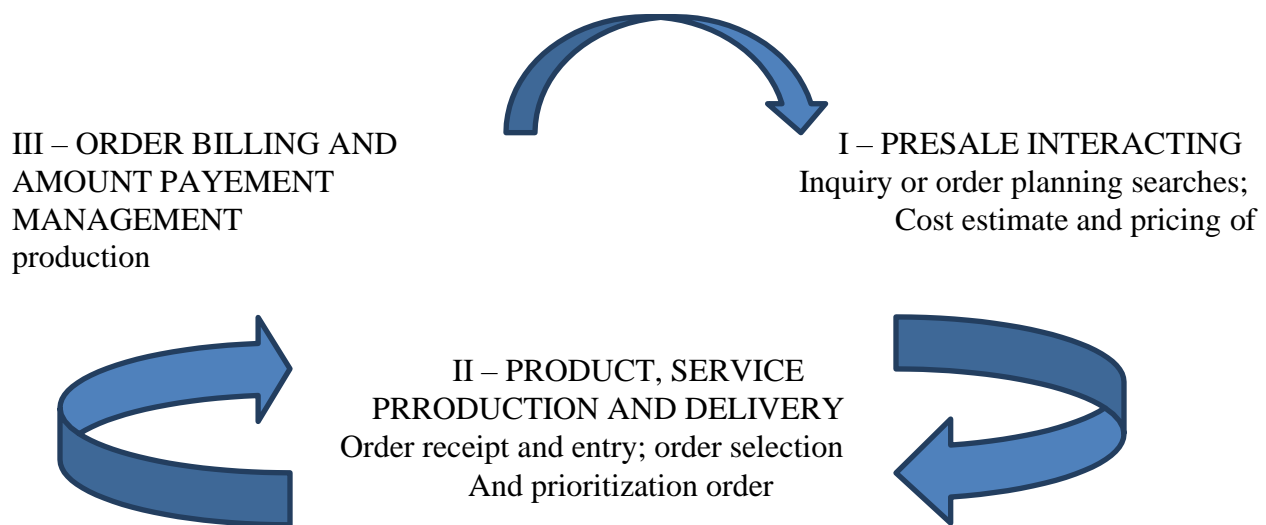
1. Orders receipt and entry
2. Order selection and prioritization
3. Order scheduling
4. Order fulfillment and delivery

III. Order billing and amount payment management

1. Order billing and payable management
2. Customer service and support

From the seller's angle, the online credit card transaction have become a basic necessity. For effective dealing n online trading, certain processes are to be followed. Planning is to be done before the buyer places the order. There must be order planning. Order planning leads to generation of orders. There are various ways to generate orders in E-Commerce. The organization must take steps to price for these services.

Pricing at the Individual Order Level depends on understanding the value of the customer. Execution cost requires a special study. For pricing the orders, there must be proper judgments, competence and specific targets. Order selection strategy requires analytical thinking and better decision-making capability.



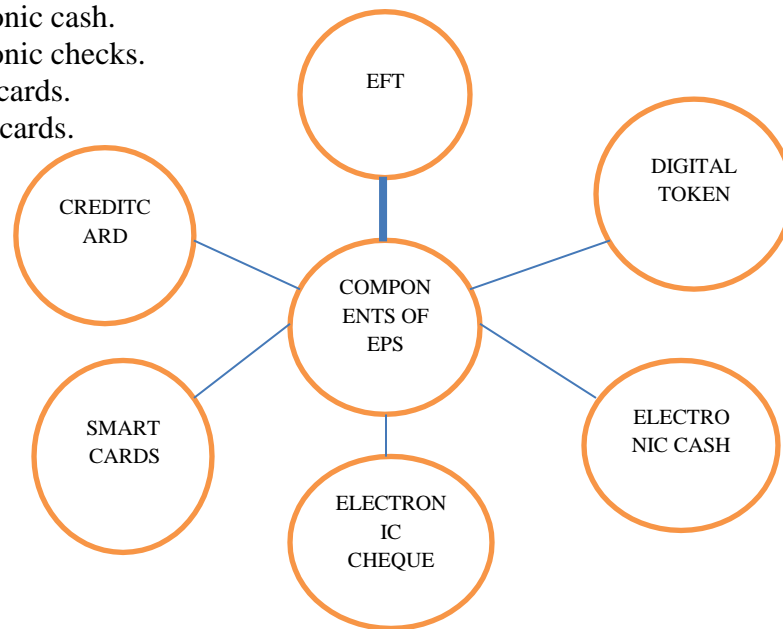
The accepted orders are to be schedule for an actual production or operational sequence. This activity includes co-ordination of departments such as sales, marketing, customer service, operations and production. Communication between the functions is often non-existing with customer service report to sales and physically separated from product scheduling. The sellers have to change their pattern of traditional activity to suit the modern E-Commerce transaction.

The issues that are associated with online retailing are classified as advertising, operations and management issue. The retail advertisement issue the models of advertisement and the segmentation and positioning, brand management, pricing and promotion. Selling and inventory control are operational issues. The management issues are location of the trade, site selection, human resources management, maintaining policies, procedures etc.

4. Explain the components of EPS.

At present, Internet is providing best and cheaper services for making payments without loss of time and efforts. Internet electronic Payment System has the following components:

1. Electronic fund transfer.
2. Digital token.
3. Electronic cash.
4. Electronic checks.
5. Smart cards.
6. Credit cards.



I. ELECTRONIC FUND TRANSFER:

Electronic Fund Transfer is the transfer of funds initiated an electronic terminal, telephone, computer or magnetic tapes so as to order instructor authorize a financial institution to debit or creditan account. It is different form the conventional financial payments system. There is no physical delivery of cash, checks or pay orders.

II. DIGITAL TOKENS:

Electronic tokens or digital tokens are three types. They are electronic cash or real-time, electronic debit or prepaid and credit or postpaid. Real time transactions are settled with the exchange of electronic currency. Electronic cash is an example of real- time. Debit and prepaid are the payments made in advance for getting information. Smart cards and electronic purses are the examples of debit and prepaid tokens. Credit or postpaid tokens are the tokens that are authenticated by the server and verify with the banks before purchase. Credit cards, debit cards and electronic checks belong to this category.

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VI. CREDIT CARDS:

The payments to the sellers are also made online through credit cards. These credit cards are the normal cards that are now in circulation. Master and visa are famous credit cards that are in usage. The transactions through credit cards are secured and are helping in various angles to the buyer as well as the seller.

5. Explain the advantages of E- Checks.

1. Mode of work similar as in traditional way.
2. Helpful in micro payments.
3. Cryptography use makes it much faster than system based public key cryptography that is e-cash.
4. Third party server charges fee and act as bank.
5. The accounting server assumes risk and hence acceptance of e-checks is reliable and easier. Inter account server protocols allow transactions if the buyer and seller are in different regions or domains.
6. Accounting servers provide deposit accounts and make money on the deposit pool.
7. Easier acceptance than e-cash in general public.

Electronic checks are a process for making Internet payments. These functions are to be performed over VANS. The electronic checks provide Internet web sites. They perform the following.

1. Provide information about remittances.
2. Present the bill to the payer.
3. Allow the payer to initiate payment of the invoices,
4. To initiate automatic payment authorization for a specified amount.
5. Interface with financial management software and transaction processing software.

6. Even allows payments to new people who have never transacted earlier.

Secure Internet payment service is available through cyber cash and Edition Electronic Institute to the edition Electronic Institute members. It enables members to receive payments from customers through Internet. Financial services technology consortium came in to existence through Electronic Checks Service (EECS) Financial Services Technology.

1. Providing online authentication of payers.
2. Provide online authentication of payers.
3. Online authorization for the transaction.
4. Sending payments instruction to banks over Internet.
5. Providing a payment server for processing payment instruction.
6. Secured and reliable transaction.
7. Quick and easy transaction.
8. Enable payers to agree on payment terms.
9. Access to multiple bank payment system
10. To select cost effective methods and speedy settlement.

6. Explain the functions of Online Third Party Processors.

The purpose of verifying electronic micro transactions, the customers register with a third party on the Internet. Verification process is carried out in the third party processor. They depend on existing financial instrument and require the online involvement of at least one additional party.

Online Third Party Processor System (OTPPS)

There are seven stages in the online third party processing system OTPPS. These processors are fast and provide efficient information. The consumer must possess a credit card. The customer can also authorize the merchant through browsers. The merchant contacts the OTPP server with the customer account number. The OTPP payment server sends an electronic message to the buyer through automatic www or through e-mail. The buyer gets three option:

1. I agree to pay.
2. No I will not pay.
3. Fraud, I never asked for this.

The OTPP will debit the account of this consumer only after getting the purchase completion conformation. This process involves:

1. Consumer,
2. Seller,
3. Payment server, and
4. Banker.

Third party processors in credit card system can be used only if both customer and merchants have registered with OTPP.

1. The user establishes an account with payment server.
2. Then using client browsers, the user makes a purchase from a seller server by checking a payment URL, which is attached to the product on a www page.

3. Unknown to the customer, the payment URL encodes the details of purchase price; target URL for hard goods etc.
4. The payment URL sends the encoded information to the payment server.
5. If the information enter by the customer is valid and if funds are available the payment server processes the payment transaction.
6. The payment server then redirects the uses browsers using the http redirects option to the purchase item with an access URL which encodes the details of the payment transaction.
7. The access URL is effectively a digital invoice that has been stamped “paid” buy the payment server.
8. The seller server runs an http server that is modified to process access URL.
9. If a customer is authenticated, the payment is automatically processed.
10. The payment server implements a modular payment architecture where accounts can be backed by different types of financial instruments, credit card account, prepaid accounts, bill account, debit card or other payment mechanism.
11. For credit cards the payment system has a real time connection to the credit card clearing network.
12. Al transactions are recorded in the user“s online statement.

UNIT-III

SECTION –A

1. What are the modern application of EDI?

EDI MODERN APPLICATION

1. EDI for procuring
2. Technical data interchange (engineer).
3. Mass customization (demand driven manufacturing)
4. Virtual and team based enterprise.
5. Outsourcing and co – ordination of logistics.
6. Desktop video conferencing.
7. Document work flow system
8. E –mail communication.

2. What does financial EDI mean?

EDI is used in Financial sector also. Financial EDI contains the transmission of electronic payments and receipts between various parties. Payer, Bankers and many others are also in Financial EDI process. It allows businessman to change the type of work.

3. What are EDI envelopes?

Normally two types of Edi envelopes are used. They are : (i) X.435 and (ii) Internet EDI based Multipurpose Internet Mail Extension (MIME).

MIME helps to send spreadsheet, word documents and multimedia messages.

SMTP – Simple Mail Transport Protocol is used to send EDI transaction set. There is PEM (Privacy Enhanced Mail, DES (Data Encryption Standards and Public Key Cryptography).

4. What is meant by product customization?

Customization requires adaptability, programmability, flexibility and efficiency. It should be capable of functioning in process, method and time. At present customer – driven customization is adapted. Now purchase decisions are complex. Modern customization is to be done with the help of technology.

5. What does workflow co – ordination mean?

Workflow coordination is the process of integrating or coordinating the tasks and resources of the firm. It creates value for customer. The forms used in workflow coordination are electronic forms, routing sheets. Network based documents etc. Workflow coordination is needed for all types of processes in an organization. Different types of technology are used. The technology used should be given higher importance.

6. What is mean by push based supply chain?

Push based supply chain starts from Manufacturer

In case of Push Based SCM, product is in the end. The manufacturers forecast on the basis of financial and marketing aspects. There will be master scheduling. Stock is stored as per safety stock level. Invoicing and purchase orders are done manually.

7. What is meant by supply chain management?

Supply Chain Management is the process, which is integrated with various basic aspects and services. SCM provides information and product flows. It starts form receipt of order and ends with final transportation. It plays an important part in various areas of management. SCM includes suppliers, customers, and financial institutions.

8. Define EDI.

Electronic data interchange (EDI) is the transmission, in a standard syntax of unambiguous information of business or strategic significance between computers of independent organization. The users of EDI do not have to change their internal databases.

SECTION –B

1. State the benefits of EDI.

Benefits of EDI

1. Quick issue and receipt of orders.
2. Higher improved relationship with partners.
3. Low inventory disputes.
4. Lesser Receivables disputes.
5. Very low paper transaction processing.
6. Reaction in errors.
7. No delay in finalizing activates.
8. Quick and better decision due to flow of information
9. Uses are having strict discipline.
10. Automatic acknowledgement of receipt of information
11. Reduction in time and manpower.
12. Other office automation activities are integrated.
13. Reduction in letters and memorandums
14. Promptness in sending and receiving information.
15. Very least cost for transmission of data.

2. Explain the limitations of EDI.

Disadvantages of EDI

1. Software problems in various places.
2. Cost of computerization is high.
3. Transparency is least and cost of conversion is higher.
4. Applications are used only in lesser areas.
5. Non availability of qualified staff.
6. Cost of qualified staff is higher.
7. Complex protocols.
8. Communication is no simple in EDI.
9. Security in transition is always in question.

3. EDI Application in business.

EDI APPLICATIONS IN BUSINESS

EDI is used in many business applications. The following are some of the areas where EDI is used in a higher extent:

- | | |
|-----------------------|-------------------------------|
| a) Railways | h) market research methods |
| b) Shipping | i) international trade |
| c) Air transport | j) loading and Unloading |
| d) CAD /CAM documents | k) Movement of goods in ships |
| e) Courts | l) health care |
| f) Customs clearance | m) manufacturing |
| g) Airline ticketing | n) Retail Procurement |

4. Discusses about the EDI legal, security and privacy.

EDI and Legal Issues

Legality of transaction is one of the prime issues in EDI. Local laws provide guidelines for physical transactions. The communication may be instantaneous and may be delayed. The delay is due to specific application, message routing, networks, system configuration and may other technical factors.

Digital signature is now used extensively in EDI. It has become legal and Acts have also been passed to legalize digital signature. The US Government purchase orders will be signed by the digital signature standard (DSS). There is Uniform Commercial Code. Digital signatures have greater legal authority.

5. Explain E-mail based messaging.

E-Mail based Messaging: Email based messaging is widely accepted method for exchanging messages. The parties will exchange e-mail address, agreement on encryption and digital signature protocol.

FTP based messaging requires log in mates in FTP, specific password, directory, file naming convention, agreement like X.12, encryption, keys, wrappers etc.

EDI Gateways contains common gateways for EDU / I message transmission. They include message construction, translation, standards, queue management, session management, full delivery interactive delivery and audit details, transmission etc.

The people required for EDI are:

- a) EDI coordinator
- b) EDI programmer
- c) EDI analyst
- d) EDI team leader

6. Describe electric fund transfer.

ELECTRONIC FUND TRANSFER

EFT is a part of Electronic Banking product that facilitates transfer of funds from any branch of e- bank to any other branch in the shortest time. For many years, the banks have been effecting intercity transfer of money for their customers through Demand Drafts, Mail transfers and Telegraphic transfers. The conventional models are clear but had some limitations. Banks in India, under the instruction of RBI, has also desired an EFT system to facilitate quick transfer to the bank of another customer. In this system, the payer and the receiver of the funds may be in different cities and the banks may also be different.

Electronic payments were earlier made through wire transfers. Western Union, and telegraph company, enabled an individual to deliver currency to a clerk in another location to disburse funds to a party at that sender location. The receiver of funds has to identify himself. Chas was delivered to the customer after his identify is established. No banks were directly involved in this process earlier.

The financial stability of the firm was the prime factor for making payment. The transmission facility of Western union was privately controlled. The public did not share the lines. Private networking technologies helped for the development of alternate electronic fund transfer system.

EFT reduced the time of payment instruction transaction between banks. Cost of transaction was reduced. It also helped to minimize banking cost, reserve requirements, quick clearing and minimizing fraud.

SECTION –C

1. Explain EDI architecture and EDI process.

EDI architecture has four layers. They are:

1. Semantic or application layer;
2. Standards translation layer;
3. Packing or transport layer; and
4. The physical layer.

Semantic layer is used to state the business applications of EDI. For example, while making a purchase, application is to be made. IT translates the requests for price, purchase order, acknowledgement and other documents. This layer is customized as per used requirements. Standards translation layer is used to adopt universal EDI standards that lay out the acceptable fields of business forms. The forms are defined. The X 12 standard of ANSI and EDIFACT of UN /ECE are some of the defined standards. For the purpose of transfer of data between two partners, the sender and received should use compatible format for EDI documents. EDI standards specify form structure and influence content of the application layer. EDI transport layer contacts with the non electronic activity of the business form one company to another. The business form could be sent through various services such as e-mail. EDI document transport is complex. The EDI documents are more structured and are manipulated and more processed more than e-mail message.

EDI PROCESS

EDI process is simple. It reads the standard electronic format and transmits to the receiver. The receiver decodes and exactly understands the information or communication. For example,

- a) Procurement functions are done through EDI.
- b) Educational institutions use it for transcription.
- c) Auto manufacturers use it for design engineering
- d) Online price catalog are sent.

Steps in EDI

- a) Buyer PC sends purchase order to seller PC; order are confirmed by seller PC.

- b) Seller PC sends booking request to Transport Co. and the transport co. PC confirms booking.
- c) Seller PC sends Advice slips notice to buyer PC.
- d) Transport co PC sends status to seller PC.
- e) Buyer PC sends receipt advice to seller PC; seller PC sends invoice to buyer PC.
- f) Buyer PC sends payment to seller PC.

Limitation

- a) EDI is costlier. It requires high cost for development and operating.
- b) Transaction can be done only through the value added networks. Only registered members can have EDI transaction.
- c) The protocols are structured and rigid. The agreements are rigid and inflexible.
- d) Costlier for small companies to adopt.
- e) EDI process ends with orders and dispatch but other entities are to be done separately. Such as fund transfer, lag in payment accounting entries etc.

www technologies are now simplifying the EDI activities and make the transaction simple.

2. Discuss about the software implementation.

EDI messages have the following structure.

- a) Transaction set –such as quotation layer
- b) Internal format layer
- c) EDI translator
- d) EDI envelope

EDI Business Application Layer creates a document in application software. Internal format layer provides similar forms. If the software are from same organization, then the transmission speed will be high. EDI translation layer is necessary for EDI. It describes relationship between the data elements. It helps to convert the data into required format.

EDI communication layer helps in transmission. They are of three types. They are:

- a) Direct Dial – Modem to Modem connection
- b) Limited Third Party VAN
- c) Full service Third Party VAN

Direct Dial methods are very common. The parties have direct access to each other through modem. Limited VANs are normal communication services such as e-mail. These limited VANS Provide basic services such as data conversion. Protocol, correction, delivery etc. full service third party VANs help to communicate with parties. Separate e-mail boxes are provided. It provides gateway to third parties.

EDI implementation cost depends on:

- a) Volume of e-transactions
- b) Time of implementation
- c) Cost of EDI software
- d) maintenance fees, and
- e) VAN charges

3. Explain the workflow management.

Work flow management

Workflow management is the vital part of all firms. Workflows for task coordination is highly needed to attain goals. General workflows are not time conscious. There should be specific workflow for each and every task.

Product customization

Product customization is based on consumer demand. Products are designed as per customer requirements. It is related to agile manufacturing. Customization given importance for timeliness and flexible operations. Time to market is the process, which depends on consumer requirements and time value. Time to market requires cross functional coordination. Flexible operation may be on the basis of production or service practices. It reduces time and inventory cost.

Internal information systems

Internal information system is apart of information system. Prime information is corporate information. Corporate data are the first information requirements for the firm. They are, created, processed and stress in many ways. It is accessed by all types of officials and workers for updating. Manipulation and for decision taking.

Modern information architecture

Cross functional system integrates the organization with all types of information. It connects database, workers, officials, processes and functions. Data are raw in nature. Information is the processed form of data.

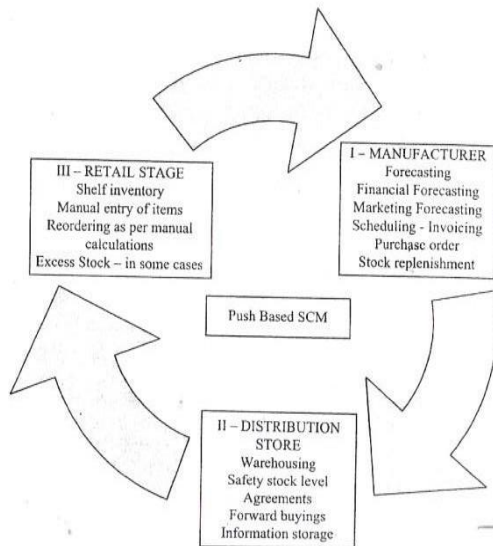
4. Explain the supply chain management. Full based supply chain.

Supply chain management

Supply Chain Management is the process, which is integrated with various basic aspects and services. SCM provides information and product flows. It starts from receipt of order and ends with final transportation. It plays an important part in various areas of management. SCM includes suppliers, customers, and financial institutions. SCM contains activities such as planning, forecasting, production, warehousing, and transportation. It integrates marketing, research, legal aspects, engineering etc.

- a) Globalized selection of raw materials;
- b) Globalised movement of finished goods;
- c) Centralized global business processes;
- d) Suitable to local conditions;
- e) Online information processing;
- f) Distributed information processing;
- g) Real time information processing;
- h) Integration of processes in supply chain;
- i) Integration of suppliers;
- j) Integration of information;
- k) Costing standards;
- l) Activity based costing;
- m) Integrating all levels of management;
- n) Higher performance;
- o) Least inventory and resource levels.

SCM may be push based or pull based SCM.



5. Explain about the factor in fluencies of changes in business.

Factors influencing changes in business

The factors, which influence change in internal structure and practices of business for accepting E – Commerce technology, are as follows;

- 1) Increasing demand from consumers
- 2) Modified consumer requirements
- 3) Competitors' position and pressures.
- 4) Informal pressure from the organization
- 5) Improved financial performance
- 6) Minimizing cost
- 7) New product innovations
- 8) Changes in information technology,
- 9) Globalization process
- 10) Quick information supply.

The companies try to cope up with the changes in the business environment and maintain or increase their market share. Various factors had compelled the organization to adopt E-commerce strategies in their organization. E-commerce has entered retail industry also. In developed countries, retailing is consistently increasing through E-commerce. Consumers demand quality products at competitive prices from the retailers as they are getting all types of information through various sites. Sometimes the consumers are directly contacting the

organization for better products and services ignoring retailers. Thus, the impact of e – commerce is seen in retail sector also. E – commerce applications are utilized in marketing inventory management, just in time manufacturing etc.

UNIT-IV

SECTION – A

1. What is meant by „Advertising on the internet“?

Advertisement through web has become a widely accepted medium of advertisement. Many agencies have created the sites for advertising. Competing with the periodicals, these agencies are actively engaged in providing advertisement assistance to various products and services. The www technology has developed significantly and the users get more time to spend on these web sites. Access fee is usually reduced to new users. The cost of access is also shared by the providers of advertisement whenever users access online yellow pages the advertisers pay for the access time.

2. What is „Marketing on the internet“?

Marketing is the process, which starts and ends with consumer. It is the prime part of business activity. Consumer needs are to be identified first and then process is to be started. Marketing requires planning, organizing, control and proper leadership. Selling focuses on volume where as marketing focuses on consumer. Advertising is the process of reaching the consumer through a media.

3. What is meant by „Pull Based Advertising“?

Pull based advertising provides facility for feedback. In the case, the customers are pulled towards the product or firm. The advertising provides for direct connection with the customer and the firm. The customer is attracted through the internet media, pull based technology contains E-billboards, catalogues, endorsement etc. Pull based advertising contains web page setup by many commercial organizations.

4. What is meant by „Target Marketing“?

Target Marketing is the process of identifying target customers. It is a way to create two-way communications with customer’s micro marketing is a type of target marketing. It aims at increasing sales at retail areas through direct contact by relationship. It also focuses on the direct selling of products to the consumers based on the orders. There are many differences between the small firms and the large firms as regards E-marketing.

5. What is meant by „Retailers“?

E-commerce has changed the roles of retailers. They get all types of information from the consumers. Retailers are now more powerful than the manufacturers due to Point of Sale devices. They record all information relating to consumers and stock availability etc. Centralized buying has decreased the cost of purchase. Many retailers are also targeting new product possibility with the help of brand people. They do market research and establish brand loyalty.

6. What is meant by „Information Filtering“?

Information filtering is one of the important goals of E-Commerce. It has the aim to select all and only that information is relevant to the relevant set. It focuses on providing efficient access to the changing information for a specific work. In this case, the access is controlled through various software filters. The filters only allow relevant information for taking decisions.

7. What are „Electronic White Pages“?

Electronic white pages provide from a static listing of e-mail address to directory assistance. They are integral to work efficiency. It reduces the amount of duplication. White pages use X.500 projects. There will be decentralized maintenance, searching capabilities single global name space, structured information framework and standard-based directories.

8. What are „Electronic Yellow Pages“?

Online directory databases give more access to firms than financial agents. Yellow pages listing take up listings. The third party directories are of nine types. They are:

1. Basic Yellow Pages
2. Business Directories
3. State Business Directories
4. Directories by SIC
5. Manufacturers Directories
6. Big-business Directories
7. Metropolitan Area Business Directory
8. Credit Reference Directory, and
9. World Wide Web Directory.

9. What are „Digital Copyrights“?

Copyrights are the rights give to the owners of the products or services for the use of specific product or service. Trade mark license, copyrights and patents are similar term used in this area. The publishers possess the Intellectual Property Right in their specific area. The magnitude of copyright problems is very high as many products and the services in the digital technology are more or less unique.

SECTION – B

1. Write a short notes on Advertising Plan.

Online advertising helps to improve business. The basic questions as to what, who, why, where, how, etc., are to be addressed. The advertising goals are to be specified. Goal priority is to be specified. Target audience for the messages is to be identified. Advertisement designed to reach “all” may rarely succeed. Successful advertisements are specific. AIDA principle i.e., attract attention, create interest, arouse desire and motivate action is to be followed. Interactive advertising should be user response oriented. It is non-linear type of advertising. Interactive advertising should contain multimedia effects. Consent oriented advertising is highly needed. Broad range of knowledge is required for content oriented advertising. Computing technology competition, customers, source of technology, organization capacity is to be identified.

2. Explain the method of Marketing on the Internet.

Marketing is the process, which starts and ends with the consumer. It is the prime part of business activity. Consumer needs are to be identified first and then the process is to be started. Marketing requires planning, organizing, control and proper leadership. Selling focuses on the volume where as marketing focuses on the consumer. Advertising is the process of reaching the consumer through a media. The media may be radio, television or catalogue. Plans for advertising are conceived within the confines or parameters set by a marketing plan. A new type of interactive advertising has come up, i.e., Online advertisement . In the case, the customers can select the information by accessing the site or page.

Mass marketing advertisement has provided advertisement for large number of people. Direct marketing has provided for market for group of customers. Interactive advertisement is a two way advertising. It aims to provided maximum information to the customer, allow him to browse, ask questions, get additional details etc.

Mass marketing select Tv or Radio channel or Newspapers as a distribution channel. Market strategy is followed for higher volume products. There are many advertising agencies for making the advertisement and the advertiser can expect increased sales.

Direct Marketing uses postal services, courier etc., as distribution channel consumer mailing list are maintained. Targeted groups such as automobiles, car and credit cards are considered for marketing strategy. Database is constructed. Advertising agencies and companies follow this method. The exception are increased sales and customer personal attention.

Interactive marketing is done through internet. Services are designed for the taste of the customers, and the customer is an active partner in this process. Marketing strategy is considered for specific audience. Information servers, Browsers, bulletin boards etc., are used. Companies and even consumers can go in for preparing advertisement information. In this case, customer relationship, new product idea and development are expected. Volume of sales can increase.

3. Describe the recent development in Online Marketing.

E-Commerce has changed the role of retailers. Retailers in traditional business activity have direct contact with consumers. They can understand the preferences and behaviour of the customer. Customer response can be measured. Now retailers maintain point of sale activity that helps the retailers to understand the customer pattern. The problems of retailers are minimized as

e-commerce transaction use central database with the price and discount details. The retailer has to just scan using the bar code reader and all other activities are taken care by the computer. Retailers try to retail consumers by providing guide and carry access to the database. They attract customers using redeemable coupons, product information.

Segmentation of market can be done on the basis of demographic variable such as sex, age, income, occupation, size of family etc. Segmentation can be done on the basis of behaviour and attitude of consumers. Segmentation can be done as per the volume of product used by the consumer. The consumer may be bulk user or medium user or light users. Specialised approaches can be used to segment markets. Market segmentation can be a part to product differentiation or product positioning. A differentiated product is done for pricing and utility of product. Differentiation may be for pricing, quality, package, delivery etc.

4. Explain Online Marketing Process.

Online marketing process included the marketing plan, advertisement, distribution and customer interaction. There are financial, time and personnel constraints in this process. The goal of marketing process is to minimize the cost and maximize the revenue. Earlier, focuses was given to the product but now focus is given to customer needs.

Frequently asked questions is a successful way to provide more information to customer. Most of the doubts of consumers are cleared in this part. New products required intense marketing. New products create or expand utility and not merely reallocate shares. It requires imagination, creativity, judgement and more experience. The success of the product depends on the utility and message spreading. Internet provides assistance to new firms to reach global markets at cheaper cost. Unnecessary advertisement costs are reduced.

Interactive Marketing Process has Six Steps

E-marketing is done by interactive method where people can directly contact the firm.

There are six steps in interactive marketing.

- a) Identified and segmenting potential customers.
- b) Designing Advertisement consent.
- c) Exhibiting Advertisement on screen. Push/Pull based methods.
- d) Customer Interaction.
- e) Customer feed back.
- f) Online customer service.

5. Discuss about the importance of advertising on the internet.

In the digital age, Internet marketing is more important than ever before. Many small businesses believe that they don't need to market on the Internet because the majority of their customers are drawn by location. However, every business must use Internet marketing for one simple reason: because everyone else does.

Reaching More Customers

Most importantly, having an Internet presence will allow you to reach more customers. If you are a small business, you want to reach customers in your area. You can do this through Internet marketing by creating local places listings on popular sites such as Yelp, Yahoo Local,

and Google Places. Your business will then appear in search results when a consumer uses search terms that identify your services and your location.

Developing a Social Media Presence

Internet marketing is also very advantageous because of the [prominence of social media networking](#). With a good online marketing strategy, you should primarily focus not only on your website but also on social media such as Facebook, Twitter, Google +, Pinterest, etc. As your consumer base becomes more and more made up of individuals who primarily connect through social media, lacking a social media presence will become a major detriment to your success.

Creating Brand Recognition

Marketing your business on the web is also beneficial because it [creates brand recognition](#). This is a piece of Internet marketing that is particularly important for small businesses. While large corporations attract and retain customers because their logos are consistently recognized and trusted, small businesses risk being unknown to consumers.

Cost-Effective Advertising

Finally, Internet marketing is valuable for all companies because it has an excellent return on investment (ROI). Advertising on the web and maintaining your online presence is one of the most cost-effective ways of reaching customers, which in turn increases sales for very little investment. In addition to advertising online and bolstering your website and social media accounts, you can also sell your products online.

6. Explain the ‘Charting the Online Marketing Process’.

Online marketing is not very simple. It is highly complex. For creating an online marketing process, some important points are to be considered.

- i) The process of advertising to be followed;
- ii) Type of electronic material to be created;
- iii) Segmenting the population of potential customers for database;
- iv) Method of using database of consumers;
- v) The primary goal is to design a marketing campaign for cost saving and increasing revenue;
- vi) Now the importance is for information and then for technology. Now the product model has changed and need model have emerged;
- vii) Providing valuable services to consumers through FAQ;
- viii) Identifying Target customers and providing new products and services.

SECTION – C

1. What is meant by „Advertising on the Internet“? Explain.

Advertisement through web has become a widely accepted medium of advertisement. Many agencies have created sites for advertising. Competing with periodicals, these agencies are actively engaged in providing advertisement assistance to various products and services. The www technology has developed significantly and the users get more time to spend on these web sites. Access fee is usually reduced to new users. The cost of access is also shared by the providers of advertisement whenever users access online yellow pages the advertisers pay for the access time.

The main reasons for the increased advertisements in the web are

1. Less access time,
2. Less access fees,
3. Easy access to information,
4. More information,
5. Modified advertisement methods.

The increase in the online services had made the agencies to attract more users. These agencies provide more value-based services such as product description, quality, modification and improvement done. The completeness of advertisement lies in attracting a customer and making him to buy the product or service. The agencies determine the advertisement rates as also make appeal to their articles. The agencies are also notifying the cost of promoting the web site and placing site linked in all online pages. The agencies are also trying to measure the effectiveness of the site. Many obstacles are existing in measuring the effectiveness. The current small market size, cost of appraisal etc., are some of the problems in measuring the effectiveness. The actual expenses cannot be calculated due to the payments to the other sites, periodicals and games. The measurement also becomes complex due to the rapid market changes.

Some of the common terms used in measuring access to a particular page are explained below:

Hit means the entry in to the log file of the web server by every request for a file mode. The main drawback is that for a single access to a page with 20 icons gets, hit numbers as 20 for each item due to the hit measure.

Qualified hits are the hits that deliver information to the user. Here the number of visits, error messages etc., are not taken into account.

Visit refers to the total number of occasions on which a user viewed the site. Here the user need not enter all the icons or anyone of the icons.

Unique users refer to the number of individuals who visited a site within a specific time. Some identification to the users is made at the end their visits and the visits are numbered.

Standard impression refers to the activity of seeing an advertisement banner without clicking the advertisement icon.

Adclicks are the number of times users clicks on an online advertisement within a specific period of time.

It is not easy to measure the effectiveness of the online advertisement in the current infant stage. Relationship between the sales, profit and advertisement expenses cannot be easily correlated. Effective research in this specific objective alone can fix the relationship between profitability and online advertisement.

2. Explain the Online Advertising Guidelines of Pull Based Advertising and Push Based Advertising.

Online Advertising Guidelines

There are some guidelines to advertise on the internet. The guidelines are important for effectiveness and reliability. Six guidelines are given by martin Nisen holtz.

1. Intrusive message should not be sent.
2. With out prior permission of user, the customer data should not be sold.
3. Designated news groups and list servers are to be used for advertising.
4. Information should be fully disclosed.
5. Information consent of consumer is needed to conduct customer research.
6. Activities should not be concealed using internet communication devices.

It is to be noted that users should not be sent message without their permission. Internet user data should not be given to the other commercial organization. Commercial postings should not be done using cross posting. Free offers can be given for promotion. All relevant information including rules, guidelines etc are to be given. The user should be informed the consequences of answering questions in research. User data should not be stored without permission of user.

Pull Based Advertising or Passive Advertising

Pull based advertising provides facility for feedback. In this case, the customers are pulled towards the product or firm. The advertising provides for direct connection with customer and firm. The customer is attracted through the internet media. Pull based technology contains E-billboards, catalogues, endorsement etc. Pull based advertising contains web page setup by many commercial organizations. Catalogue directories help to search the databases. Endorsement is the method where more users recommend the product or service in the group.

In Billboard, model information is displayed in the web page and it will attract the consumers. It is used to remind or reinforce consumers. The viewing time may be more for customers.

Catalogue services are becoming more popular. They provided more information on networks. The success depends on the ability to interact with a firm by customers. Effective use of network can be done by catalogue service.

Yellow pages are a popular catalogue service provider. It helps in providing quick services to buyers. It is also supports other types of advertising.

Endorsement about product and services rendered by a firm are done by users. It is an effective form of advertising. It is a public and interactive advertising method.

Push Based Advertising/Pull Based Advertising

Online advertising can be divided into:

1. Active/Push based advertising.
2. Passive/Pull based advertising.

Push based advertising is done to promote products or services by pressurizing consumers or explaining the product quality and service quality.

It can be divided into two types: (1) Broadcast model and (2) Junk e-mail model.

In Broadcast model, the advertising is done to send message for reaching more number of people. It can be done in a shorter period. It is similar to that of TV or radio advertising. Direct mail, cable TV models etc, use this broadcast message model. The number of people reached by advertising depends on the channel program, viewership and penetration power. The advertising may be text based broadcast message. It can be posted in this web site.

In junk mail method e-mails are sent to specific target people using mailing list. The advertising expenditure is low. There will be flexibility in preparing the message. It is one of the most important forms in online advertising. Junk e-mail is the direct mail and it may be fully informative, Knowledge can be shared. It may create unwanted expenditure. It may disturb privacy. The customer may be wasting time in reading these advertisement and pay for the internet usage period. Push based advertisement does not have interactive marketing, adaptability, flexibility and responsiveness. Promotional programs may be done for unwanted product and services. They may induce children and adults to go in for illegal activities.

3. What is meant by Information Filtering? Explain.

Information Filtering

Information filtering is one of the important goals in E-Commerce. It has the aim to select all and only that information is relevant to the relevant set. It focuses on providing efficient access to the changing information for a specific work. In this case, the access is controlled through various software filters. The filters only allow relevant information for taking decisions. The filters may be of two types. They are: (i) Local filters and (ii) Remote filters.

Local filters work on the income data to a computer. Remote filters may to be software agents and filter data at goal levels. The software filters searched for relevant information. The data may be text, pictures, graphics or other types.

Information Search and Retrieval

Information search is the process of searching for information. Information retrieval is the process of providing information at required time or at specific intervals for decision-making. The data may be structured or semi structured or unstructured. The process if searching for information can be end user retrieval or publisher indexing phase. Information searched and retrieval can be done through various methods. Some of them are Wide Area Information Service (WAIS) Engine, Search Engines etc.

Indexing Methods

Indexing methods may be either file level indexing or word level indexing. File level indexing does not carry any additional information about the location of words within files. Word level indexing is highly technical and stores the location of every instance of a word. It contains the location of each word in the file system.

Indexing Package Types

Indexing package may be a client-server method, the mainframe based method or parallel processing method. The client-server method is based on the distributed approach. The power of server is used for the data-intensive work of comparing search terms or indexes. The mainframe-based method is more expensive and less flexible. Parallel processing method is the process that conducts searches simultaneously. The processors may or may not share memory and storage.

4. Explain about the „Electronic White Pages“ and „Electronic Yellow Pages“.

Electronic Directories

Electronic directories are essential for conducting electronic commerce. Directories are one of the most fundamental components of electronic commerce. They are of two types. (i)

White pages and

(ii) Yellow pages.

White pages are used to locate people or organizations. The Yellow pages are for locating consumers who have decided to purchase goods or services. The Yellow pages have built up in the consumer a degree of faith in providing information. The electronic yellow pages has the goal to build directories that serve as interfaces to resources and are accessible from e-commerce applications. A directory or catalogue is an information base about a set of real world objects. Directories are organized for easy access to information and to locate entries where the actual information is stored. Directories are now becoming integrated with message services including Electronic Data interchange or electronic mail.

Electronic White Pages

Electronic white pages provide from a static listing of e-mail address to directory assistance. They are also found within organizations. They are integral to work efficiency. It reduces the amount of duplication. White pages use X.500 projects. There will be decentralized maintenance, searching capabilities single global name space, structured information framework and standard-based directories.

DSA stands for Directory System Agents. DSA is a server that stores information as per X.500 standards.

DUA stands for Directory User Agents. DUA is the receiver of DSA services.

DIT stands for Directory Information Tree. It is a hierarchical data structure consisting of a root and many nodes.

DUA can be used in all sorts of user interfaces. It interacts with the directory by communicating with one or more DSAs. Chaining involves passing a request to various Directory System Agents before a response is generated. Referral identifies most suitable DSA. Multicasting involves in passing the same request by a DSA to two or more DSAs. Hybrids are the combination of chaining, referrals and multicasting.

Electronic Yellow Pages

Online directory databases give more access to firms than financial agents. Yellow pages listing take up listings. The third party directories are of nine types. They are:

1. Basic Yellow Pages
2. Business Directories
3. State Business Directories
4. Directories by SIC
5. Manufacturers Directories
6. Big-business Directories
7. Metropolitan Area Business Directory
8. Credit Reference Directory, and
9. World Wide Web Directory.

5. Explain the importance of „Digital Copyrights“.

Copyrights are the rights given to the owners of the products or services for the use of specific product or service. Trade marks, license, copyrights and patents are similar term used in this area. The publishers possess the Intellectual Property Right in their specific area. The magnitude of copyright problems is very high as many products and the services in the digital technology are more or less unique. Some digital versions are being downloaded by the users and given to other for use. The present day information and data are digital in nature. Technological improvements have become a real threat to the copyright. Many digitalized objects are created, owned, distributed, reproduced, displayed, managed, organized, accessed, used and stored. These activities have made changes in the copyright laws. However, many authors do not want to publish due to the fear of unauthorized access of their data.

Online copyrights can be protected by the restricting access to the source of work. Restrictions should also be imposed to the manipulation of data of the digital object. Many information provides control access to their system. They first fix the nature of data or information required. Some provisions restrict access to users with accounts or only grant limited access to their data. The access for anonymous user is restricted to some data only in File Transfer Protocol servers Some databases have unrestricted access, some restricted access and some databases have partly restricted access. Access control is affected through log in name, password and procedure. Some documents are programmed in such away that they can only be viewed. These files cannot by downloaded. File encryption is also followed for maintaining secrecy. The user has to the key from the provider to decrypt the data.

Some software programs and hardware do not allow unauthorized access to the personal computers. The software may restrict copying or permit copying. Further copying cannot be done from those files. Some files have access for reading or viewing only. Protection of copyrights is a global issue. Copyright owners to protect, license and authenticate information can use access control, encryption technology and digital signature. Electronic licenses can be used in connection with information sold. The copyright management has a registration and recording system such as Digital Library system with copyright and a Rights Management system. A conclude market place is the real place to protect the copyright than copy other agencies.

UNIT-V

SECTION-A

1. What is meant by Multimedia?

Multimedia study includes the study of various forms of media, compression, storage, transport and use. Digital video transmission has six stages. There are

- a) Image Capture;
- b) Image Compression;
- c) Image Storage;
- d) Image Transmission;
- e) Image Processing; and
- f) Image Display.

2. What you mean by "Compression".

Compression is the process of reducing volume by eliminating unnecessary space. Data block may contain 50,000 bits but the information may be only to the extent of 5,000 bits. The balance may be empty spaces.

General storage requirements for some type of data:

- a) Text
- b) Image
- c) Detailed Bitmap
- d) Audio
- e) Video

3. What is meant by Frame Relay?

Communication is the one of the prime objects of E-Commerce. The information is to be sent to various users in the midst of traffic volume. The following factors are to be considered for broadband communication.

- Areas of Traffic;
- Volume of Traffic ;
- Bandwidth requirements;
- Nature of information;
- Quickness needed; and
- Error control level.

4. What is meant by Cell Relay?

Cell relay switch is one of the methods of Fast Packet Switching. ATM is a type of cell Relay. Cell Relay is used for Voice and data network or mixed data.

5. What you mean by “ATM Switching”.

ATM has two circuit types. They are (i) Switched Virtual Circuit (SVC) (ii) Permanent Virtual Circuits. Switched Virtual Circuit is the basis for advanced telecom transmission. Permanent Virtual Circuit uses dedicated line. Users have to specify information flow.

53 bytes	
Header (5)	Information Payload 48 bytes

ATM network is used to send information a fixed length cells. It has 53 bytes fixed length.

6. What are Mobile Computers?

Mobile Computers are part of the computing system. Mobile computer supports mobility of the computing equipment. Wireless Network is used to access the resources. Mobile computers can access information at any time and from any place.(Based on the Research Report of James Bryan Zimmerman, University of Maryland).

7. Define „Mobile Computing”.

Mobile Computing is made possible by portable computer hardware, software, and communications systems that interact with a non-mobile organizational information system while away from the normal, fixed workplace.

8. What is meant by Wireless Packet Data Network?

Data Transmission is done in Packet Switching method. The method of pocketing requires special attention. A special transceiver RF MODEM breaks down data into 128-byte packets. Then it transmits a stream of packets into the air. They are packed up by radio towers and forwarded to the proper addressee. There may not be error correction.

9. What are the Cellular Data Communication Protocols?

Cellular Data Communication is done in two ways i.e., Circuit and Packet Switching. Circuit Switching is like telephone line wire connection is established each other. In Packet Switching, the data packets, broken, transmitted and then reassembled.

GSM is the Global System for Mobile Communication. It services and wireless data services.

Cellular Digital Packet data (CDPD) is a digital data transmission system that provides packet data access.

SECTION-B

1. Explain the various methods of Compression.

Data compression is divided into four types. They are:

- Disk compression in section;
- Backup compression;
- Video oriented compression; and
- Data compression for low speed network.

Disk compression in section is compression in sector disk compression is not visible to the users. The data can be decompressed quickly.

Backup compression is the method of compression files before they are downloaded and before storage.

Video oriented compression is the method of compression method used for graphic type of data. It is a type of online storage capability.

Data compression for low speed network is the compression used in modem, router etc., for transmission through telephone lines.

2. Discuss the concept of symmetric multi-processing.

Symmetric multi-processing is the process of treating all process equally and processor can do the work of any processor. The function is divided into various tasks and they run simultaneously or concurrently. No processor will be idle.

Multi-tasking is the process of running multiple programs by the server operating system. In this method, the programs are run simultaneously by switching control between them. Multi-tasking may be Preemptive or non-Preemptive. Multi-tasking is done by Windows NT. In Multi-tasking, the process is the smallest unit of execution.

Multi-threading is the advanced type of multi-tasking. It is the ability to support separate paths of execution within a single address space. In this process, the process is divided into independent executive task. It is called system can schedule to run. The thread is the smallest unit of execution that a system can schedule to run. The thread contains stack, instruction pointer, priority queue, CPU state and entry in the system schedule about the state. The state of thread can blocked for input, scheduled for execution.

3. Write short notes on (I) JPEG (II) MPEG.

JPEG

JPEG is the still image compression. It is used as a part of MPEG or motion JPEG. The following are its characteristics:

1. JPEG compression is cheap;

2. It allows easy access to frames;
3. It can capture full screen;
4. It can full rate video;

JPEG uses three steps:

1. Discrete Cosine Transformation (DCT);
2. Run Length Encoding (RLE);
3. Variant of Huffman encoding.

MEPG

MEPG- I is the process of compression bit stream of video and audio optimized into a bandwidth of 1.5 mbps. Feature of MPEG- I

- I. MPEG- I allows users to compress and playback;
- II. It provides video at source Input Format (SIF);
- III. The quality of decompressed video is measured in displayable color, pixels per frame, number of frames per second.

MEPG-II is the process of compressing signals for broadcast quality video.

4. Explain „Desktop Video-Conferencing“.

Video-conferencing is the important communication tool. Many users follow face-to-face video-conferencing. In o3den days, costly tools are used for video-conferencing. Separate rooms are built for video-conferencing. Now video-conferencing is simple.

1. The users sits in his own desktop in his place;
2. The use of Internet and compressor technology;
3. Small windows appear on the screen;
4. Many can interact at the screen;
5. Each user has mute control.

The factors to be considered in Video-conferencing are: (i) Cost (ii) standards and (iii) Compression model.

Data Document conferencing is the process of screen sharing. The remote user shares one or more designated windows. The users can directly modify source data. Desktop Video-conferencing are of three types.

- a) POT used Video-conferencing;
- b) ISDN used Video-conferencing;
- c) Internet Based Video-conferencing.

Some of the Video-conferencing programs are CU-SeeMe, MBone

CU-SeeMe is the first software for Windows Operating System for real time multi-party video-conferencing.

- a. It provides One-To-One conferencing;
- b. It provides Many to Many conferencing;
- c. It requires minimal cost for conferencing;
- d. Digital Camera is used.

MBone is the Virtual Network i.e., Multi-Cast Backbone. It conducted research to understand efficient multi-casting, audio and video facility; packetized video-packet based video-conferencing. In this case, images are continuously digitized and compressed. Transmission can be done to remote users.

5. Explain various switching techniques.

There are two types of primary switching technologies. They are (i) Circuit Switching Technology and (ii) Packet Switching Technology.

Earlier Circuit switching is used for voice and packet switching is used for data transmission. Circuit switching network contains many links and each link is dedicated to specific number of users. Telephone system can be an example.

Packet Switching network divides information into small packets of data.

- a) Each packet has own built in address;
- b) Transmit across the available link;
- c) Allows end user to share network dynamically;
- d) Can be divided into: (i) Slow packet (x.25) and (ii) Fast packet.
- e) Fast packet switching can be different as per call setup a traffic or switching type.

6. Describe Cell Relay Structure.

Cell relay switch is one of the methods of Fast Packet Switching. ATM is a type of cell Relay. Cell Relay is used for Voice and data network or mixed data.

- a) All data should be transmitted in fixed length packets (cell).
- b) Cell are fitted at the router by data packets at irregular intervals.;
- c) In the receiving side, the cells are emptied of their data packets.
- d) Traffic moves in the form of digital pipes.
- e) More efficient in allocation of bandwidth in frame relay.
- f) There is problem of serialization delay.
- g) Delay in sending video pictures, the picture quality will be low.

There are two types of cell relay. They are:

- I. Switched Multi-megabit Data Service (SMDS).
- II. Asynchronised Transmission Mode (ATM).

7. Discuss the need for mobility in computing.

As notebook computers become more and more affordable, the population of these mobile users continues to grow. To cope with their needs, mobile computing them easy and convenient access to the campus network and the Internet. Different people can gain benefits from this mobile computing service.

Students can read e-mails and newsgroups, access library online catalogue information: download lecture materials when they are connecting their notebooks in computer barns. Staff

can use their notebooks during teaching to demonstrate materials Internet. Mobile computing is a technology. Which helps user to connect user computer to network whenever and wherever user goes . This technology is actually driven from the demands of users who ask for mobility and portability in using the computers.

Characteristics: There are two main characteristics in mobile computing technology.

Portability- Wired Communication: Though the computer still need a wire/cable to link up to network, it provides the portability. This means that user computer is simply being restricted to the network port in user office but can be extended/portable to any where with a network port.

Mobility-Wireless Communication: True mobility is allowed her and it uses the radio (or infrared) signals for communication. As such, users can read and send e-mail while commuting or boating.

8. State the features of satellite network.

Satellite network is a global communication system. It connects almost all continents and nations. It is a cost effective solution. Data receiving station can keep expensive-Receive only dish.

FEATURES

- It is highly reliable;
- There is no cable connection;
- Loss of equipment is least;
- Use of least power;
- Access to remote areas;
- Transmission of data has to follow encryption.

9. Explain the elements of Digital Video.

The Following are the various digital video appilication:

1. Video games,
2. Digital Camera,
3. Digital Video cassette,
4. Digital TV receiver,
5. Digital Video Contest,
6. Digital Player,
7. Video on Demand,
8. Video Telephony,
9. Desktop Video editing,
10. Image Database.

10. Describe the soft ware used in mobile computing.

Mobile computers make use of a wide variety of system and application software. The most common system software and operating environments used on mobile computers include:

- a) MSDOS;
- b) Windows 3.1/3.11/95/98/NT;
- c) Windows for Pen Computing;
- d) Windows CE;
- e) PenDOS;
- f) Pen Right;
- g) Palm OS;
- h) Psion EPOC32; and
- i) UNIX.

These operating environments range in capabilities from a minimalist graphically-enhanced-pen-enabled DOS environment (PenDOS and Pen Right! For DOS) to the powerful capabilities of Windows NT.

Not all mobile computing application software has to be custom designed. Pre-written application software can be purchased for many application areas, such as sales forces automation. Additionally, many companies that develop mobile computing software offer systems integration services, and will work with client to modify their existing application to fulfil the client's specific needs. Each operating system/environment has some form of integrated development environment (IDE) for application development environment option for custom application development

11. Explain „Mobile Access Devices“.

Mobile communication can be sent through coaxial cables, fiber optics

1. Portable Computer-Laptop, Notebook, Handheld set.
2. Hybrid Personal Computer.
3. Personal Digital Assistant
4. Palmtop
5. Cellular MODEMS.
6. PCM CIA Adaptor.

Portable computers are of three types. They are (i) Laptop, (ii) Notebook and (iii) Handhelds.

Laptops are useful for running applications that demand very powerful portable computer. Notebooks are used for large amount of word programming. Handheld sets are less powerful versions for massaging

Hybrid pen computer is a pen-based interface. It is equipped with wireless communication.

PDA has digital assistant, personal communication and palmtop.

Cellular Modems may be industry oriented application or General Purpose Application.

PCM CIA is Computer Memory card International Association.

SECTION-C

1. Explain the Frame Relay.

Communication is the one of the prime object of E-Commerce. The information is to be sent to various users in the midst of traffic volume. The following factors are to be considered for broadband communication.

- Area of Traffic;
- Volume of Traffic;
- Bandwidth requirements;
- Nature of information;
- Quickness needed; and
- Error control level.

There are two models in Packet Switching method. They are (i) Frame Relay (ii) Cell Relay.

The main aims of Packet Switching methods are:

1. High speed data transmission
2. Pricing
3. Priority
4. Multi-casting services
5. Reduce the number of transport network for data, text, audio, video and graphics
6. integration services

The following are to be understood first to study Frame Relay:

1. Narrow band
2. Broad band
3. ISDN
4. BISDN
5. ATM
6. LAN
7. WAN
8. Wire connection
9. Wireless connection

Narrow band provides a single channel for communication on a cable. Ethernet can be used. Signals need not be multiplexed.

Broadband is the ability to stack frequencies on single transmission medium providing multiple channels on the same wire. The physical cable is divided into various channels. Each division has own unique carrier frequency. It uses Frequency Division Modulation (FDM). It allows multiple, simultaneous conversion.

ISDN is the process of utilizing the pre-existing telephone copper wiring. It operates by increasing the calling capacity. The additional capacity is used when special electronic components are added. Three types of ISDN are ISDN B, ISDN D and ISDN H.

ISDN B Channel use 64 kbps clear channel. It can transmit any digitized data and voice. In ISDN 2B channel, two kinds of information can be transmitted simultaneously.

ISDN D Channel can operate at 16 kbps or 64 kbps. It is used to common channel signalling. It is used for email, remote login etc.

ISDN H channel is divided into three categories. H0 uses 384 kbps; H1 uses 1544 mbps and H2 uses High Speed data communication. H0 is used for video-conferencing, FAX-up to four, H0 channels can be multiplexed into single H1 channel.

B ISDN is the process of using the fiber optic level. It can transmit information at high speed. It uses optic network. It deals with the nature of highway surface.

ATM- Asynchronized Transmission Moe is a service that can run over B-ISDN. It can run over a number of various media such as unshielded copper wire.

2. Write in detail about the Cellular and Data Communication Protocols.

Cellular Communication is fast developing in all areas. The salient features of cellular communication are:

- ✓ Increased capability.
- ✓ Widespread coverage.
- ✓ Declining cell size.
- ✓ Micro cells.
- ✓ Personalized Wireless Data.
- ✓ High Speed Wireless WANS.

In cellular system, the area coverage is divided into hexagonal cells. Which overlap at the outer boundaries. Communication take place through grid transmitter and receiver. Frequencies are divided into cell bands. Buffer zones prevent interference or jamming of near cell frequencies. Handoff is the process where the signals may drop of shortly due to increment from the area covered by one cell into the area covered by a different cell. Careful monitoring and switching of cells are required.

Cellular Communication Process

Cellular Handset is Numeric Arrangement Module (NAM), an identity based on home area. As the mobile unit moves across cells, it must continuously send message to the Mobile Telephone Switching Offices (MTSO) to confirm l6cation.

Monitoring is done when the handset is switched on. It monitors the control channels to get information on local channels. In the available channel, it gets into an idle state. It listens to the data transmission.

Incoming calls are received through Mobile Telephone Switching Offices (MTSO). The handset receive signals and responds to MTS

Outgoing calls are transmitted through MTSO by an available access.

3. Explain „Mobile Computing Framework“.

Mobile Computing has developed in various areas or dimensions. They are:

1. Wireless Delivery;
2. Switching mode;
3. Mobile Information Access Devices and
4. Mobile Data Inter-networking;
5. Data Equipments; and
6. Mobile Computing based Business Applications.

Wireless Delivery Technology is the method of delivery of information through wireless mode such as paging, radio, infrared, cellular service, satellite etc. Switching Mode-Wireless/mobile type of switching mode is followed immobile computing. Internetworking standards-Internetworking connectivity is used for data transmission. Digital data transmission technology is used in wireless mode. Mobile Equipments are used immobile computing. Business Applications are made possible through mobility and portability.

Wireless Delivery Technology

Wireless Delivery Technology contains the following:

1. Radio Based Systems.
2. Cellular Communication.
3. Wireless Packet Data Network.
4. Satellite Network.
5. Very Small Aperture Terminals VSAT.
6. Paging Network.
7. Infrared Mobile Computing.

4. Describe the technologies used in Communication.

The most common technologies are:

- a) Wireless Local Area Networks (WLANs);
- b) Satellite;
- c) Cellular Digital Packet Data (CDPD);
- d) Personal Communications System (PCS);
- e) Global System for Mobile communications (GAM);
- f) RAM and ARDIS data networks;
- g) Specialized Mobile Radio (SMR) service;
- h) One and two-way paging;
- i) Plain Old Telephone System (POTS);
- j) Internet;
- k) Infra-red;
- l) Docking (serial, parallel, LAN); and
- m) Disk swapping.

These diverse communications technologies make available a continuum of connectivity that provides communications capabilities ranging from manual-assisted batch transfers to high-speed continuous communication.

5. Explain the characteristics of hardware in mobile computing.

The characteristics of mobile computing hardware are defined by the:

- i. Size and form factor;
- ii. Weight;
- iii. Microprocessor;
- iv. Primary storage;
- v. Secondary storage;
- vi. Screen size and type;
- vii. Input;
- viii. Output;
- ix. Battery life;
- x. Communication capabilities;
- xi. Expendability; and
- xii. Durability of the device.

Using these hardware characteristics, mobile computing hardware can be grouped into the following general categories:

- Palmtop;
- Clamshell;
- Handheld Penkey;
- Penslate; and
- Laptop.

Although a lot of mobile hardware has many eye-catching characteristics, the decision about which hardware to employ should be based entirely on clear business needs. And having a solid strategic plan for how the new hardware will be used, it is the best way to avoid disappointment and missed opportunities. While many specific make and models of hardware exist, the general categories of mobile computing hardware depicted in the previous table adequately characterize the majority of mobile computing device available today. Users need and want access to their data wherever they go, and they will use a wide assortment of mobile computing devices to get it. Except for possibly high-end laptops, none of satisfy the demands created by mobile users' many computing needs.

6. Explain Mobile- Computing Applications.

The real power of mobile computing becomes apparent when mobile hardware, software, and communications are optimally configured and used to accomplish a specified mobile task. Although many varied applications exist, mobile computing application can generally be divided into two categories horizontal and vertical.

HORIZONTAL

Horizontal applications have board-based appeal and include software that performs such as: (a) e-mail; (b) Web browsing; (c) word processing; (d) scheduling; (e) contact management; (f) to-do lists; (g) messaging; (h) presentation. These types of application usually come standard on Palmtops, Clamshells, and laptops with systems software such as Windows 95.

Common Horizontal Applications

Palmtops: Contact Management, to-do lists, simple text editing, scheduling, e-mail or messaging, voice memos.

Clamshells: Contact Management, to-do lists, word processing, spreadsheets, presentations, scheduling, e-mail and messaging, web browser, voice memos, fax.

Handheld Penkeys: Normally they do not have integrated horizontal applications.

Penslates: Generally capable of executing same software as laptops. Not normally used for office automation due to slight limited resources and lack of key board.

Laptops: Normally they come preloaded with common office automation software; Word processing, spreadsheets, presentation, e-mail, Web browser, fax, databases.

Vertical: Vertical applications are industry-specific and only have appeal within the specific industry for which the application was written. Vertical application are commonly used in industries such as: (a) retailing; (b) utilities; (c) warehousing; (d) shipping; (e) medical; and (f) law enforcement and public safety. These vertical applications are often transaction oriented and normally interface with a corporate database.

Common Vertical Application Functions

Palmtops: Automated data collection, remote database access, information retrieval.

Clamshells: Automated data collection, remote database, information retrieval.

Handheld Penkeys: Automated data collection, remote data access, transaction processing.

Penslates: Automated data collection, remote data access, remote processing.

Laptops: Automated data collection, remote data access, remote processing.

Common Vertical Applications-Others

Palmtops: Inspection, Auditing, Health care, surveys, Inventory.

Clamshells: Sales, Inspection, Health care, Surveys, Inventory, Auditing.

Handheld Penkeys: Trucking, Warehousing, Courier services, Airlines, Utility and fieldwork (water, gas, electric, railroad, telephone, etc.) Restaurant, Inventory, Inspection, Dispatch, Manufacturing.

Penslates: Health care, Insurance estimation, Decision Support System Access, Warehousing, shipping, Mapping, Dispatch.

Laptops: Sales, Law enforcement, Service industries, Insurance, Engineering.