UNIT 2: BASICS OF INTERNET

UNIT STRUCTURE

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2.1 LEARNING OBJECTIVES

After going through this unit you will be able to

- Know about the internet;
- Explain the components of the internet;
- Know different types of internet connections;
- Define different internet based applications;
- Know about searching and browsing of the internet.

2.2 INTRODUCTION

Information technology consists of different components like electronics, computer hardware, software, and telecommunications. Integration and application of the above technologies in information handling for

efficient and effective information management is termed as information technology. By using IT we can obtain, process, store, transmit and output information in the form of voice, picture or text. A part of information technology is the Internet. If one has heard anything about computers, then he/she would have certainly heard about the Internet as well, as it is so popular that there is hardly any one who has not come across the term.

Internet, a computer network, rather a network of networks, makes any information available at the touch of a button. The importance of internet lies on the fact that it is like a printing press of the technology era. It is like a huge central warehouse of data that can be accessed by people from all over the world. The internet represents one of the most successful examples of the benefits of sustained investment and commitment to research and development of information infrastructure. The internet today is a widespread information infrastructure, the initial prototype of what is often called the national (or global or galactic) information infrastructure comprising more than thousands of regional, national and international networks which connect people from all over the world.

Internet has brought about drastic changes in social contact and tries to by pass physical face to face contact. Today, it is used daily by millions of people, who access it for a variety of purpose. There has been practically no technology being adopted at a rate similar to the internet.

This unit will deal with the internet, the evolution of Internet, basics of Internet terms etc.

2.3 DEFINITION

On October 24, 1995 the FNC unanimously passed a resolution defining the term Internet. This definition was developed in consultation with the members of the internet and intellectual property right communities. “The Federal Networking Council” (FNC) agrees that the definition of the term “Internet” is reflect in the following expression: “Internet refers to the global information system that

a) is logically linked together by a global unique address space based on the Internet Protocol (IP) or its subsequent extension (follow-ons;

b) is able to support communication using the Transmission Control Protocol / Internet Protocol (TCP/IP) Suits or its subsequent extension / follow-ons and / or other IP compatible protocol and

c) provides uses or makes accessible either publicly or privately high level services layered on the communication and related infrastructure, described here in http://www.fnc.got/internet-res.html."

In simple term, the internet is an enormous network of millions of computer allowing constant communication throughout the world. It is a loose connection of related networks or a network of networks. It is made up of Local Area Network (LAN), Metropolitan Area Network (MAN) and huge Wide Area Network (WAN) of the whole world. It is a global information highway and a universal database of knowledge which itself collectively represents human society on a virtual life.

2.4 HISTORY

The first recorded description of the social interaction that could be enabled through networking was a series of memos written by J. C. R. Licklider of MIT, USA in August 1962 discussing his "Galactic network" concept. He envisioned a globally interconnected set of computers through which everyone could quickly access data and program from any site. The internet began to evolve when packet switching network came into operation in the 1960s. In Europe, when transmitted data is broken up into small packets and sent to its destination then the reassembled packet can also be compressed for speed and encrypted (converted into code) for security.

a) ARPANET : In 1968, a similar system as that of packet switching was developed in the USA. In 1969, Pentagon Commissioned Advanced Research Projects Agency Network (ARPANET) for research into networking. In the following year Vinton Cerf and others published their first proposal for protocol that would allow computer to "talk" to each other. Thus, ARPANET began operating using the Network Control Protocol (NCP). The first host to host protocol, which went into operation at the US Defence Department's Advanced Research Projects Agency

(ARPA) in 1969-1982. In 1974, Vinton Cerf joined Bob Kahn to present their "protocol for packet network interconnection" specifying the detailed design of Transmission Control Protocol (TCP), the basis of the modern internet. In 1978, TCP was split into TCP (now short for Transmission Control Protocol) an Internet Protocol (IP). When NCP was replaced by the new widespread Transmission Control Protocol / Internet Protocol (TCP/IP), a number of interconnected US military computers formed the first sizable internet for defence use (communication in the event of nuclear attack).

b) **National Science Foundation:** Internet really took off in the year 1980s when the National Science Foundation (NSF) used ARPANET to link its five regional super computer centres at major universities so that many users could share their work. Later on NSF created National Science Foundation Network (NSFNET), a series of networks for research and education communication. It was provided free to any US research and educational institution.

c) **USENET:** Usenet is actually a companion network to electronic mail started at Duke University and the University of North Carolina, USA and it also offers an unusual service called "Network News". Email was developed through ARPANET as did the Bulletin Board System (Usenet). Usenet, which began in 1979 contributes enormously to the internet's rapid expansion. Its spirit of information sharing and discussion was the hallmark of its system and was reflected in the Internet as a whole.

d) **World Wide Web:** By the end of 1980s the European Particle Research Laboratory (CERN) in Geneva was one of the premier internet sites in Europe. CERN desperately needed a better way of locating all the files, documents and other resources that now threatened to overwhelm it. Tim Berners Lee, a young British scientist working as a consultant for CERN, had found out an answer for the above problem. In 1991 his World Wide Web system assigned a common system of written addresses and hypertext link to all information. In 1991, the first www files were made available on the internet for downloading using File Transfer Protocol (FTP). In October, 1993 there were around 200 known

HTTP servers. In 1993, the National Centre for Supercomputer Application (NCSA) developed web browser (namely Mosaic) which took the internet by storm.

2.5 COMPONENTS OF INTERNET

The Internet consists of the WWW and all the hardware, software, protocols on which WWW runs. One of the main characteristics of Internet is that it is a decentralized system i.e there is no single person or organization that owns or control Internet, all who use Internet or supply material to it, have a role to play. However, there are organizations such as InterNIC, the National Science Foundation, the Internet Engineering Task Force, ICANN and the Internet Architecture Board which oversee and standardize what happens on Internet.

a) World Wide Web: The WWW is also called web. The WWW is a set of programs, standards, and protocols (set of rules) governing the way in which multimedia files (files containing a combination of text, graphics, photographs, audio, video) are created and displayed on the Internet. The difference between the Internet and the WWW is similar to the distinction between a computer and a multimedia program that runs on the computer. The Internet is a decentralized global network of computers that transfer information and the wiring that makes all these possible, whereas the web is a collection of documents or websites, that users can access using the Internet and a web browser.

b) Hardware: It means the computer (supercomputer, web server, and personal computer), modem (external or internal) and cables or telecommunication lines. The cables with jacks and rackets connect the modem with the computer and telephone. The users possess the terminal or the computer, modem, etc. The ISP procures the server that serves up web pages upon request.

i) **Modem:** Modem is a device that allows computers to communicate over telephone lines, it converts a digital signal to an analog signal and vice versa.

c) Software: It includes the operating system and web browser.

i) Operating System: In case of Operating System, Windows, Linux or others will do. The higher versions of the OS are preferable because it has an inbuilt component to support internet connections.

ii) Web Browser: A web browser is the software program that is used to access the WWW or to visit web pages and display it in the computer screen, e.g. Internet Explorer, Google Chrome, Netscape Navigator, etc.

iii) Telecommunication Lines: The telephone companies own the equipment and cables that carry signals to the service providers.

d) Internet Protocol Suite: The Internet Protocol Suite [also known as Transmission Control Protocol / Internet Protocol (TCP/IP)] is the set of communication protocols used f or the Internet and other similar networks. It governs the way data travels from one machine to another across a network. It is named from two of the most important protocols in it: the Transmission Control Protocol (TCP) and the Internet Protocol (IP), which are the first two networking protocols defined in this standard.

The Internet Protocol Suite, like many protocol suites, may be viewed as a set of layers. Each layer solves a set of problems involving the transmission of data, and provides a well-defined service to the upper layer protocols based on using services from some lower layers. Upper layers are logically closer to the user and deal with more abstract data, relying on lower layer protocols to translate data into forms that can eventually be physically transmitted.

The Internet Protocol Suite consists of four layers. From the lowest to the highest, these are the Link Layer, the Internet Layer, the Transport Layer, and the Application Layer.

In the application layer, the following are the common types of protocols

i) HTTP: Web pages are transferred between computers using Hyper Text Transfer Protocol.

ii) **FTP:** Excluding web pages other types of files are transferred between computers by using FTP. It is a mechanism that allows placing and retrieving of files over the Internet. It allows anyone to download software, upgrading of downloaded softwares, information and so on. It provides authorization of persons allowed to copy the files.

iii) **Telnet Protocol: I**t is a simple programme created by National Centre for Supercomputer Application (NCSA) that uses TCP/IP to provide connection into another computer. Telnet allows a users' work station or terminal to behave as though it is directly connected to the machines where the user is logged in. It means that Telnet helps to operate remote computers from one's own desktop. The condition is that the user must have log-in account and passwords to access the remote computer.

iv) **Gopher Protocol:** The University of Minnesota Microcomputer workstation centre created gopher to find information on the internet in a user friendly way. It is a menu-driven programme that allows one to click with information server or "Gopher Holes" on the Internet to retrieve the information including text, sound and images. The gopher system is impressive owing to its simplicity volume and variety of information available. To retrieve information an indexing tool called Veronica is used that searches all gopher server using a set of keywords.

e) **Internet Service Provider (ISP):** An Internet service provider is an organization that provides some crucial portion of the Internet infrastructure to help connecting to the Internet. Sometimes the Internet Service Provider also responsible for telecommunication link i.e telephone connection to users' site, or in today's context Data Card providers and an internet account (username and password). The ISP provides the Internet connection to the user.

f) **The Website**: The Hyper Text Mark Up Language (HTML) is the commonly used language for creating the web documents or webpage. However it is not the single one. A website is a set of related (linked through hypertext link) web pages, published by an organization or individual.

Normally it contains a home page along with other additional pages. The home page is the starting point or doorway to a website providing an overview of what could be found at the website. Home page is also known as the index page or index.

In Internet environment, the download refers to copying or saving the data, information from the internet to the local computer. Uploading is just the opposite of downloading. It is the sending of the data or information from the local computer to the Internet. The Online means staying connected to the Internet. The offline is just the opposite. Offline means that the user is no longer connected to a remote computer or the internet.

In Netscape Navigator, Bookmarks is a list of favourite web pages and Internet resources. One can add items to this menu at any time. Bookmarks are equivalent to favourite in Microsoft Internet Explorer.

2.6 INTERNET PROTOCOL ADDRESS

An Internet Protocol (IP) address is a numerical label that is assigned to devices participating in a computer network utilizing the Internet Protocol for communication between its nodes. An IP address serves two principal functions in networking: host or network interface identification and location addressing. The role of the IP address has also been characterized as a name that indicates what we seek. An address indicates where it is. A route indicates how to get there.

The network portion of the IP address is allocated to the Internet Service Providers (ISP) by the InterNic under authority of the Internet Assigned Number Authority (IANA). ISPs then assign the host portion of the IP address to the machines on the network that they operate.

a) **Uniform Resource Locator (URL):** The location of a web page on the internet can be identified by a unique address which is called URL. Every single page of the hundreds of millions of pages stored on the web has a URL. The URL or the address tells the browser which document to fetch and exactly where to find it on a particular host computer some where on the internet.

b) **Domain Naming System (DNS):** The Internet uses an addressing scheme that employs the Domain Naming System (DNS). Domain names provided a system, an easy to remember internet address which can be translated by the Domain Names System (DNS) into the numeric address (Internet Protocol Number). The internet protocol number is the numeric location of a particular computer so that it is an identifiable machine to all the other computers connected to the internet. The IP address is a 32 bit number divided into four octets and these octets are written in dotted decimal format eg. 11.245.196.212. Each octets numbers lie in between o and 255.

c) **Internet Address:** The Internet address is needed so that massage can be correctly routed to and from the machine over the network. Each part of the address goes from general to specific and consists of letters, numbers, and punctuation. The basic structure of URL is hierarchical. i.e Protocol:// Server name. Domain name. Top level domain name. port / Directory / File name. Eg: http://www.liswiki.com/wiki/index
Protocol: The protocol is generally Hyper Text Transfer Protocol (HTTP).
://: It is a kind of separator that tells the browser that the next words will be actual URL.
Server: WWW. It indicates the site as part of the World Wide Web. The web is a subnet of Internet that uses multimedia objects.
Domain Name: Liswiki is the domain name. This is a unique name which has to be registered with InterNIC, an organization which has official authority over all domain names.
Top Level Domain Name: It indicates the purpose of the institute / organization associated with the website. Some of the top level domains are-

Organizational Domain

.com: Commercial entities;
.edu: Educational institutions;
.gov: US government institutions;
.int: International institutions;
.mil: US Military institutions;

.net: Network resource providers;

.org: Non profit organization.

Geographic Domain: Outside the United States a code is included to which country a URL belongs. Though United States also have a domain code (US) yet in reality it is used in rare instances on the Internet. It is assumed that if there is no geographic code then the domain is located within the United States.

For example:

.au: Australia;

.ca: Canada;

.in: India;

.va: Vatican, etc.

Directory: The next is the directory on the host computer that contains the specific website.

2.7 TYPES OF INTERNET CONNECTIONS

The type of internet connection requirement depends on its uses. If the user wants an Internet mainly for sending e-mail, occasional chats, infrequent browsing then he should go for a dial-up connection. If the user is using the internet frequently for research, downloading or uploading a fair amount of data, play multi-player video games or live audio or video streaming, then he should look into other high speed accesses such as a cable modem or ISDN. The

Internet connection generally can be categorized into the following-

i) **Dial-up (analog up to 56k):** In a Dial-up, the telephone lines are used to connect to the Internet. Here to get connected, the user needs to specify a username, a password, and a telephone number.

ii) **Digital Subscriber Line (DSL):** DSL operates over normal telephone lines and it can be used simultaneously with the telephone. It can increase the connection speed by ten times from a standard dial-up modem.

iii) **Integrated Services Digital Network (ISDN):** ISDN involves the digi-

tization of the telephone network so that voice, graphics, text, and other data can be provided to users from a single terminal over existing telephone wiring. It is four times faster than a Dial-up network.

iv) **Cable Internet:** A cable modem connects the user to the Internet through a cable television line. A cable modem will typically have two connections, one to the television outlet and the other to the computer. It is 10-100 times faster compared to the dial-up modem and added interactivity to the television.

v) **Leased Line:** Leased line facility is provided via fiber optic or copper lines to provide data, voice and video links between two parties. It provides for a consistent amount of bandwidth. For example, T-1 Lines, T-3 Lines, etc. It is especially useful for businesses connecting to the Internet and for Internet Service Providers (ISPs) connecting to the Internet backbone.

vi) **Internet over Satellite (IoS):** Here the data are transmitted via satellite to a dish antenna at the users' house. It allows a user to access the Internet via a satellite that orbits the earth. A satellite is placed at a static point above the earth's surface in a fixed position. Because of the enormous distances signals must travel from the earth up to the satellite and back again. IoS is slightly slower than high-speed terrestrial connections over copper or fiber optic cables.

vii) **Wireless Internet Connections:** Wireless Internet or wireless broadband is one of the newest Internet connection types. Instead of using telephone or cable networks for your Internet connection, one can use radio frequency bands. Wireless Internet provides an always-on connection which can be accessed from anywhere- as long as one is geographically within a network coverage area. It is typically more expensive and mainly available in metropolitan areas.

Broadband is often called "high-speed" access to the Internet, because it usually has a high rate of data transmission. In general, any connection to the customer of 256 kbit/s (0.256 Mbit/s) or greater is more concisely considered broadband Internet access. The standard broadband technologies in most areas are DSL and cable modems.

Newer technologies in use include pushing optical fiber connections closer to the subscriber in both telephone and cable plants.

Modems which use mobile phone lines [General packet radio service (GPRS), Universal Mobile Telecommunications System (UMTS), Wired Interoperability for Microwave Access (WiMax), etc.], are known as cellular modems. Cellular modems can be embedded inside a laptop or an appliance, or they can be external to it to access the Internet. External cellular modems are datacards and cellular routers. The datacard is a PC card or ExpressCard which slides into a Personal Computer Memory Card International Association (PCMCIA)/PC card/ ExpressCard slot on a computer.

2.8 FACTORS AFFECTING SPEED OF INTERNET CONNECTIVITY

a) **Speed of the Modem:** The speed of the modem greatly influences the speed of internet connectivity So, for getting higher speed one must procure a modem with a maximum speed of 56kbps or higher, if possible.

b) **Quality of Phone Line:** Noise on the phone line, running into the home, can disrupt internet connection with a modem. So, higher quality phone line should be used. If possible, ISDN should be implemented to solve the problem.

c) **Internet Traffic:** While hitting a popular site, one may be competing with the hundreds or thousands of others for the attention of that site server resulting in slow speed of access. The web traffic generally tends to expand throughout the day and peaks around the evening. So, for getting high speed one should try to change the time of the day he/ she is going for online.

d) **Personal Computer:** There are some other factors which are associated with personal computer. They are-

   i) **Processor:** For getting higher speed one should procure processors which have 650 MHZ or higher speed.

ii) **RAM:** Working with other software application at the time of browsing decreases the RAM capacity resulting in slow speed of access to the Internet. So, it is better to get higher RAM or avoid working with other software application while surfing.

iii) **Hard Disc:** A highly fragmented hard disc can slow down web surfing considerably. So, it is good to practice to keep the hard drive defragmented and optimized.

iv) **Browser's Cache:** Web browser's cache is a storage area on the computer's hard disc. As one surfs the browser stores the web pages that are already visited in the cache up to the disc space limit that one has set. When anyone tries to retrieve the same page after its first visit the browser displays the cached WebPages from the hard disc which is very fast and not from the Internet. So, if cache memory is small it slows down the access to the Internet. The solution is to increase the browser cache limit.

v) **Image Loading:** Today many files are very big and rich of data, picture, image, etc and so it takes longer time to download the images resulting in slow speed to Internet access. One can solve the problem by turning off image loading and java in the browser without affecting the content of a webpage. This can be done by selecting advanced Tab of Internet options in the Tool menu.

vi) **Working with Two or More Browser Windows at a Time:** To increase further surfing speed one can surf with two or more browser tabs or windows at a time. This will enable one to read the content of one page while allowing another page to load in the second windows. This may help to cut down the time lag and frustration.

2.9 INTERNET APPLICATIONS

Almost every protocol type available on the Internet is accessible on the web. There are many activities that can be preformed online. Some of the commonly used applications are only listed here in the following paragraphs;

i) **World Wide Web:** It is a subset of Internet and it presents text, images, animation, video, sound, and other multimedia in a single interface. The operation of the web relies primarily on hypertext, as it is a means of information retrieval. Hypertext is a document containing words that connect to other documents and resources throughout the Internet.

ii) **Email:** Electronic mail or e-mail is a fast, easy, and inexpensive way to communicate with other internet users around the world. Email overcomes most of the problems and delays of getting a physical document from one person. It is one of the basic and earliest services of the Internet and the most used application on the Internet too.

iii) **File Transfer Protocol (FTP):** It is a system of rules and a software program that enables a user to log on to another computer and transfer information between it and his/her computer. FTP can be done using the command prompt, browsers, and various GUI based FTP softwares such as CuteFTP and WS_FTP.

iv) **Telnet:** It allows a user to log on to a remote computer in such a way that a person may interact with another machine as if it is being used locally. The user's monitor displays what is taking place on the remote computer during the telnet session.

v) **Chat:** Chat programs allow the users on the Internet to communicate with each other by typing in real time. It is sometimes included as a feature of a website.

vi) **Internet Telephony:** Internet telephony is the use of Internet to exchange spoken or other telephonic information. The required hardware for Internet telephony generally consists of end devices (either traditional telephone or audio-equipped personal computers) and gatekeepers that provide call admission control, bandwidth management, addresses translation, authentication, and user location. There are many Internet telephony applications available, for example CoolTalk, NetMetting, etc.

vii) **Video Conferencing:** It enables direct face-to-face communication across networks using audio, video, and the data. In video

conferencing, web cameras, microphone, and other communication tools are necessary.

ix) **E-Commerce:** E-commerce refers to buying and selling goods and services online.

x) **Mobile Commerce:** M-commerce or mobile commerce refers to transactions through a mobile phone network and data connection that results in the transfer of value (monetary or otherwise) in exchange for goods and services.

xi) **Mailing List (Listserver):** It is a method of sending and receiving discussions via e-mail, organized around some topics within a large community.

2.10 INTERNET BROWSING AND SEARCHING

Searching or browsing in Internet environment is nothing but retrieving of relevant results from the Internet.

a) **Browsing:** In Internet environment, browsing refers to opening a website through the web browser that contains hyperlink and with the help of these hyperlinks, jumping to a new web document in the same or a new window. It is also known as navigating or surfing the web.

i) **Working with Address box of the Browser:** In the online mode one can use web browser for arriving at a particular address. In the "Address" box of the browser, typing the web site's address (URL) and pressing the "Enter" button of the keyboard or by pressing "Go" button, the browser will open a particular website. When the web site opens, its home page is displayed. The keying appropriate URL in the address box of the browser is obligatory. The website or home page will contain links to other website or hyperlinks. By clicking on the highlighted words or links one can access other files of the same website or entirely a different website.

ii) **Working with Mouse:** While we are on a webpage, we can use the vertical or horizontal scroll bars to move around or through a document.

iii) Working with Keyboard Keys: We can use “Up” (?) and “Down” (?) arrow keys to move up or down one line. Pressing the “Page Up” (PgUp) key moves up one window length, and pressing “Page Down” (PgDn) moves down one window length. Pressing “Ctrl+Home” takes us to the beginning of the document and pressing “Ctrl+End” take us to the end of the document.

iv) Working with Hyperlink in the Document: A webpage contains many hyperlinks in the form of text as well as images. When you move your mouse cursor over the hyperlink it will take the form of a hand with a pointing index finger ( ). You can open the hyperlink by just clicking on it. You can also open a hyperlink by right clicking it and selecting the “Open” option from the shortcut menu, or by selecting the “Open in a New Window” option to open the link in a new window.

v) Working with Back, Forward button of the Browser: If you browse through several pages in a window, you can move backward and forward by clicking the “Back” (?) and “Forward” (?) button in the standard toolbar. These two options will only back or forward one page at a time. But, you can also select from the list of pages by placing the mouse pointer over the “Back” button and then by clicking on the down arrow (?) besides the button, and then clicking on any site from the list of previously visited sites.

Clicking on the “Stop” button stops whatever the browser is doing, and will wait for your next instruction. It is particularly useful for undoing mistakes.

b) Searching the Internet: Internet is a huge collection of information so it needs the search query to be specific; otherwise, it will retrieve some irrelevant results. Searching means finding or locating information through some search engines, directories, databases, etc. Generally all searching tools provide you an option in the form of search box to conduct a search. The search over Internet is interactive, provides post co-ordinate search facilities and produces more results at a higher speed at a reduced cost.

Some of the well known search engines are Google (http://www.google.com), Bing (http://www.bing.com), and Ask/Aj/Ask Jeeves (http://www.ask.com). Most search tools have a similar structure. All will include in some form i) form for you to enter your keywords, ii) a button which will begin your search, iii) links to help pages and advanced search tools, normally located near the search form, iv) special features and options, and v) subject categories (most).

i) **Keyword Search:** This is most generally used over the web. In this technique, the document available in the WWW is generally searched by using keywords in the search box of a search engine; use of preposition, articles and such other words are avoided in this type of search. E.g. searching for Mahatma Gandhi, India in Google (http://www.google.co.in). Results from this method are often mixed and you may have to go through many results to find the site most useful to you. For keyword based search, the search strategy may include identifying keywords by breaking down the topic into key concepts.

ii) **Phrase Search:** When a user is quite aware of all the words that occur in the same sequence in the relevant digital document, then he/she can use phrase (or proximity) search techniques. In such cases the search terms were down the search results considerably. Surrounding a group of words with double quotes tells the search engine to only retrieve documents in which those words appear side-by-side; e.g. “God of Small Things”, “Five Laws of Library Science”, (Five Laws of Library Science), etc.

iii) **Wild Card / Truncation Search:** When a user is aware only of some of the letters that are contained in the keywords then he / she can use wild card search technique to retrieve all the documents containing the words which again contain the particular letters stated by the user. In wild card search techniques the known letters are followed by an asterisk “*” or sometimes by a “?” mark. The asterisk or question mark may be given in the left, right or in both sides of the known letters as the case or need may be; e.g. Cata*, to retrieve document containing the word “cataloguing”, “cataloguer”, “cata-

logues", etc. i.e the search engine will find all the words that contain keying letters as prefix letter of a particular word. Wildcard features allow variations in spelling or word forms.

iii) **Boolean Search:** Most of the search engines use "and" "or" and "not" as boolean search query, some uses "*", "+" and "-" for the same purpose. Eg: Five laws of library science * S. R. Ranganathan, to retrieve all documents containing the words "Five laws of library science" and "S. R. Ranganathan". In most cases the Boolean operators "and" "or" and "not" are used to connect the key concepts.

iv) **Natural Language Search:** Some search engine uses natural language search queries i.e the user is free to use natural language query to retrieve the relevant result. The system will automatically ignore the unnecessary words. This is true in http://www.altavista; http://www.askjeevas.com, etc. Eg.: Who is the Prime Minister of India, to retrieve the name of the Prime Minister of India or to retrieve thousands of pages not containing the word "Who".

v) **Complex Search:** In this type, combinations of the above search techniques are used to retrieve more relevant results. For example, one can combine phrase searching with implied Boolean operator. E.g.: "Classified catalogue code" * "S. R. Ranganathan".

vi) **Field Search:** A web page is composed of a number of fields, such as title, domain, host, URL, and link. So, field searching is one of the most effective techniques for narrowing results and getting the most relevant websites listed at the top of the result page.

vii) **Meta Search:** The content of search engines, indexes and databases generally vary. So, if the same search query is typed into several search engines then it is likely to produce different results. So, a user may often want to know to see the results from various search engines. In such cases he/she can use the Meta search engine to get single input or query and to retrieve results from different search engines. Some example of Meta search engines are http://www.search.com, http://www.albany.net/allinone, etc.

viii) Database Searching: Searching the directory or database is entirely a new experience. One can search the directory or databases by the specific entry point, which the particular directory or database is using to search its records. In case of a database of books the access point can be the title of the article/document/author/editor/accession no, etc. In the database searching, one can also save his/her result in accordance to his/her requirement. Some common examples of databases are http://www.sciencedirect.com, http://www.jstor.org, etc.

2.11 ADVANTAGES AND DISADVANTAGE OF INTERNET

a) Advantages

i) Central Repository of Information: The Internet is like a huge central warehouse of data that can be accessed by people from all over the world.

ii) Direct Communication: Through email, chat, internet telephony, video conferencing, etc. one can directly communicate with others.

iii) Round the Clock Availability: Information on the internet is available to the user 24 hours a day and 365 days of the year.

iv) Cheapest Medium : Internet is perhaps the cheapest medium for online help, trouble shooting assistance, for getting specific information, etc.

v) Distance Learning: It provides the facility of learning remotely without physically coming in contact with the teacher, the school or university.

vi) No Barrier: In the internet environment any one can be author / writer / publisher and users of the information. There is no barrier in this regard.

b) Disadvantages of Internet

i) Copyright: Digitization violates the copyright laws as the thought content of one author can be freely transferred to another without his acknowledgement.

ii) **Incompatible Hardware and Software:** The hardware and software are modified every day. So a document that is available in one format may not be accessible in the days to come. So, one has to upgrade the hardware and software configuration as and when needed.

iii) **Artificial Environment:** The environment created by Internet is an artificial one.

iv) **Volatile Information:** The electronic environment though very exciting and stimulating is also quite volatile.



CHECK YOUR PROGRESS

Q 1 : Match the Following

a) Internet Explorer	a) Operating System.
b) Google Chrome	b) Web Browser
c) Windows	c) Domain name for non profit organization.
d) .org	d) Web Browser.
e) .com	e) Search engine.
f) .in	f) Domain name for commercial entities.
g) Google	g) Domain name for India.

Q 2 : Expand the Following Abbreviations

a) ARPANET.
b) DNS.
c) FTP.
d) GPRS.
e) HTML.
f) HTTP.
g) IP.
h) ISP.
i) LAN.

j) MAN.
k) NCP.
l) NSF.
m) TCP/IP.
n) URL.
o) WAN.
p) WWW.



2.12 LET US SUM UP

Internet is the largest of all other networks connecting a large number of smaller interconnected networks, so it is a computer based worldwide network connecting other smaller networks. It is a global network linking millions of computers and people cutting across all barriers and boundaries of countries, race, class or sex. Internet can also be described as a collection of government, academic, commercial and individual sites.

The launching of ARPA in 1957 by Sputnik, and European Particle Research Laboratory (CERN) are at the backend in the development of the Internet. The Internet mainly consists of the WWW and all the hardware, software, and protocols. To get connected to the internet, the user will need a computer, a modem (internal / external), and an Internet account with the ISP.

The usefulness of Internet lies in its characteristics of the Worlds Greatest Library where everybody will find it as a vast pool of information; it is the Wide Area Network, and much more. Besides, it also provides the latest information on any topic available round the clock and from a wide distance.



2.13 FURTHER READINGS

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2) ITL Education Solutions Ltd (2008). *Introduction to information technology. Singapore*: Pearson Education.
3) Rajaraman, V. (2000). *Fundamentals of computers*, 3rd ed. New Delhi: Prentice Hall.
4) Saxena, Sanjay (2003). *A first course in computer.* New Delhi: Vikas.



2.14 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1:

a) Internet Explorer	a) Web Browser.
b) Google Chrome	b) Web Browser
c) Windows	c) Operating System
d) .org	d) Domain name for non profit organiza tion.
e) .com	e) Domain name for commercial entities.
f) .in	f) Domain name for India.
g) Google	g) Search engine.

Ans to Q No 2 :

a) ARPANET:	Advanced Research Projects Agency Network.
b) DNS:	Domain Naming System.
c) FTP:	File Transfer Protocol.
d) GPRS:	General packet radio service.
e) HTML:	Hyper Text Mark Up Language.
f) HTTP:	Hyper Text Transfer Protocol.
g) IP:	Internet Protocol.
h) ISP:	Internet Service Provider.
i) LAN:	Local Area Network.

j) MAN: Metropolitan Area Network.
k) NCP: Network Control Protocol.
l) NSF: National Science Foundation.
m) TCP/IP: Transmission Control Protocol / Internet Protocol.
n) URL: Uniform Resource Locator.
o) WAN: Wide Area Network.
p) WWW: World Wide Web.



2.15 PROBABLE QUESTIONS

A) Short Answers Type Questions

a) Define Internet.
b) Write a brief history of Internet.
c) What are the different factors that affect the speed of Internet connectivity?

B) Essay Type Questions

a) Write a descriptive note on the components of Internet.
b) Briefly describe the Internet protocol address.
c) What are the different types of Internet connections? Describe each of them.
d) Describe the Internet applications.
e) Describe searching and browsing of Internet.

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