7.Web Hosting

A Website is a collection of WebPages. These WebPages contain information like text, audio, videos etc.A Website can be accessed by any one only if it is hosted in the Webserver.Publishing a website requires the following steps

1. Choose the type of web hosting we needed.
2. Buying host space.
3. Domain Name Registration
4. Uploading files through FTP Client S/w

Web hosting is the service of providing storage space in a web server to keep files for s website to be available on the internet so that any one can access it.

I. Different Types of Web Hosting: There are different ways in which space can be provided for a website in a webserver.The Type of web hosting has to be decided based on many factors like the memory space nedded, the no. of visitors that expected to visit the web site, the use of resources like databases etc.The different types of web hosting are

1. Shared Hosting: This is the most common type of web hosting. Here different types of websites are stored are stored on one single web server and they share resources like RAM and CPU.Shared hosting is not suitable for websites that need high bandwidth, large storage space etc and is most suitable for small websites having less n/w traffic. Shared Hosting is cheaper and easy to use. One draw back is that if any one website consumes more bandwidth, it will slow down the working of other websites since the bandwidth is shared here.

2. Dedicated Hosting: Here the web server is not shared by other websites, rather one web server is dedicated for one website and the resources like storage space, RAM etc are not shared by others. Large organizations,Companies,Govt.Depts are use dedicated hosting since there no. of users is much higher. Here the client has the freedom to select software and hardware for the website. These dedicated servers are mostly kept is data centers and hence they are provided with continuous power supply, high speed connectivity, proper ventilation and maintenance by experts. Cost for dedicated hosting is very high but it provides high speed connection. A client can place their own servers in the service provider facility and it is called co-location.

3. Virtual Private Server (VPS): A VPS is a physical server that is virtually partitioned into several servers using virtualization technology. Each VPS is similar to a dedicated server and has its own operating system, RAM, other s/ws installed in it. Each of these VPS has the facility to restart their servers without affecting other virtual servers.VPS hosting provide a dedicated bandwidth to each VPS.By this we get the advantage of dedicated hosting at lesser cost. This type of hosting is suitable for websites that requires more features than shared hosting but does not require all the features of dedicated hosting. Some popular virtualization s/w are VMware,Virtualbox,FreeVPS,Usermode Liux,Microsoft Hyper-V.

II. Buying Hosting Space: Once the type of web hosting is selected for our website, the next step is to buying hosting space from service provider. While buying hosting space we should be care full about the space we needed, database support, email facility etc.We should select the hosting space for storing all our files needed for the website.If the webpages containing programming content,we need a supporting technology in the webserver. We can select Windows server or Linux server.

III.Domain Name Registration:Our website need a URL to identify and access the website in the internet.For this we need a domain name.After finalizing a suitable domain name for our website,we have to check whether this domain name is available for us.The website like www.whois.net provide a facility to check the availability of a domain name that we have selected.Thse websites check the database of ICANN that contain the list of all regd. Domain names and gives a response.If the domain that we have selected is available,we can proceed with registration by filling the detais like Name,Address,Phone no,Email id etc of the Registrant.After paying annual regn.fee through online,we are allocated with the domain name that we have regd.

Next stage is to connect the domain name with IP address of webserver.This is done using '**A record'** (Address Record).A record is used to store the IP Address

of a web server connected to a domain name. Here you can set the IP Address for a domain name. We can modify the A record by login to it. Only after registering 'A record', the DNS can connect to IP address of a URL.

IV.FTP Client Software: After selecting the type of web hosting, buying the space and domain name, next step is to transfer the files of the website from our computer to web server. This can be done with the help of FTP client s/w.

To connect to a FTP server FTP client s/w need user name and password to login.This username and password and domain name.This facility is provided by The Site Manager dialog box of FTP client.FTP send user name and Password in plain text form, which is unsecure.Therefore now a days SFTP(Secure File Transfer Protocol) is used to encrypt username and password.SFTP uses SSH(Secure Shell)protocol for encryption.FTP client s/w is provided with 'drag and drop' option option to upload files to web server.Egs. for FTP client s/w are FileZilla,,Cute FTP,Smart FTP etc.

Free Hosting: Free hosting provides web hosting services free of charge. The service provider displays advertisements in the website hosted to meet the expenses. But there are some restrictions for uploading the files like the file size could not exceed a limit, audio/video files could not upload etc.

Free Webhosting services are usually provide either their own sub domain(myschool.google.com) or as a directory service(www.google.com/myschool).(Here myschool is for eg. Our domain name and google-service provider).Free hosting is useful for sharing contents on the web among groups having similar interests like non profitable organization, charity,social services etc who are not able to spend money for web hosting.Sites like Sites.google.com,yola.com etc provide free web hosting.

Content Management System (CMS):CMS refers to a web based software system which is capable of creating, administrating, and publishing websites.ie, CMS provides an easy way to design and manage attractive web sites.CMS are freely downloadable. Copy the files of the CMS to the hosting space on our web server and configure the website. While using CMS s/w make sure that the web server supports the CMS. There are templates available for CMS and we can choose a template and we can add titles, images etc for our website.CMS provide security features also and helps people with less technical knowledge to design web sites.CMS is highly economical and is suitable for bloggers.Egs. for CMS are Wordpress,Joomla,Drupal etc.

Responsive Web Design: Responsive Web design is the custom of building a website suitable to work on every device and every screen size like Desktop,Mobile phones,Tablet etc.In earlier days companies are maintaining separate websites for mobile devices.Traditional webpages are designed for Desktops and Laptops.When these pages are viewed by mobile devices we fell difficulty.We may scroll from one part to another part of the webpage to view completely. Responsive web design eliminates this.The term Responsive web design was first proposed by Ethan Marcotte.

Responsive webdesign can be implemented using the following ways

Flexible grid layout-It is used to set the size of entire webpage to fit the display size of device.

Flexible images-Flexible images and videos set the image/video dimensions to the percentage of display size of the device.

Media queries-Provide different styles for individual devices (A horizontal menu in a webpage for larger devices may convert to drop down menu for mobile devices.) This done with the help of CSS file.

10.Enterprise Resource Planning (ERP)

An Enterprise is a group of people and other resources working together to achieve a common goal.AnEnterprise consists of different depts.like Marketing,Sales,Finance,Human Resource(HR) etc.Each Dept.has their own duties and responsibilities. The different resources in an organization are Money, Manpower, and Machinery etc.

Concept of ERP: In some enterprises the information produced in one dept.may not be available to other depts..ie,there is no communication between depts.For better efficiency each dept.must communicate to other depts..

ERP combines all the requirements of a company and integrated to a central database so that various depts.. can share information.In this way the employees working in any dept.get information about his dept.or another dept.in the same organization.ERP is a fully integrated business management s/w that integrates various modules like Finance,HR,Producation,Sales,etc.ERP is an integrated business management system.

Functional Units of ERP:ERP combines may modules of an organization.Some of the commonly used modules in an organization are

Financial Module: This module collects financial data from various depts. And generate various reports like Balance sheet,Trial balance,General ledger etc.

Manufacturing Module:This module manages the entire production process.This module provide freedom to change manufacturing and planning methods whenever required.

Production Planning Module: This module is used for the utilization of resources in an optimized way so as to Maximize the production and minimize the loss.Optimization means to use resources effectively for the production.

HR Module: HR module maintain an updated and complete employee details database which consists of information like personal details,salary details,attendance and promotion.

Inventory Control module: This Module manages the stock requirement for an organization. It is responsible for identifying the inventory requirements,setting target,reporting inventory status etc.

Purchasing Module:This module is responsible for the availability of raw material in the right time at the right price. This module generates purchase orders for the suppliers, billing etc. This module is closely connected with inventory,finance and production planning module.

Marketing Module:This module is used for monitoring and tracking customer orders,increasing customer satisfaction and eliminating credit risks etc.

Sales and Distribution Module: This module manages the sales and distribution activities.This module includes inquiries,order placement,order scheduling ,dispatching and invoicing.This module integrates with e-commerce web site.

Quality Management Module: QM Module deals with the following functions Quality Planning,Quality Inspection and Quality Control.This module ensures the quality of a product.

Business Process Re engineering (BPR)-It is the analysis and redesign of workflow with in an enterprise. Due to rapid change in business field and IT the process of business needs to be redesigned for better service.Re engineering may result in efficient time management, reduced cost, and effective utilization of resources.With the invention of e-commerce ,time and distance may not be a barrier for conducting business.

In BPR, Re engineering and Business Process is defined separately.Re engineering is the rethinking and redesigning of a business process to achieve improvements in a business organization. Business process is a structured set of activities designed to produce specific o/p for an organization. Business Process consists of 3 elements

Inputs-I/p data for Processing like Data,Materials etc.

Processing- A set of activites to produce an o/p

Outcome- The result of processing.

The different phases of BPR are Identification of business process, Analysis of current business process, Designing a revised process and implementing a revised process.

Connection between ERP and BPR: Before implementing ERP we need to conduct a BPR to determine the changes in the structure of business process. This helps to an enterprise to avoid unnecessary modules in ERP.Some BPR may find that there is no need for a ERP system. In some other institutions both BPR and EPR works together to achieve better results.

Implementation of ERP: There are different steps for the implementation of ERP and they are

1.Pre evaluation screening – Here we analyze the modules/packages that needed for the organization.By selecting appropriate modules the no.of modules can limited.

2.Package Selection-Here we screened different packages so that it should be flexible to meet the requirements.An ERP system needs huge investments, once a package is selected ,it is not easy to switch on to another package.
3.Project Planning-In this stage the implementation of process is planned and designed.The time schedule,roles and responsibilities of various persons etc are planned.
4.Gap Analysis-Thre is not a single complete ERP package available for meeting all the requirements of an organization.Even the best ERP can meet 80% of needs of an organization.So Gap Analysis must be conducted.
5.Business Process Reengineering-Re engineering may result in efficient time management, reduced cost, and effective utilization of resources.It is the analysis and redesign of workflow with in an enterprise.
6.Installation and Configuration-This is the main functional phase of ERP.Before installing a new ERP package the whole process of the enterprise should be analyzed indetail.Instead of replacing the old system with new ERP system ,a prototype of the actual ERP is develop and testing of the prototype is done to find its weakness.
7.Implementation and Team Training- This is the phase where the company trains its employees to implement and works on the system. The company should select appropriate employees with right attitude, willingness to change and learn new things and who are not afraid of technology.
8.SystemTesting-The software is tested to ensure that it works properly,free fromerrors etc.
9.Going live-This is the phase where ERP is made available to the entire organization.After this phase the system is ready for use.After configuring,Testing,removing errors and checking the correctness of the o/p the system become live to perform its operations.
10.End User Training-This is the phase where the actual users of the ERP system need to be trained.The employees need to be trained based on their skills to use the new system.
11.Post Implementation-This the phase where we checked whether the objectives set for the ERP system has met.
ERP solution Providers/ERP Packages-There are many ERP packages available in the market.Some of them are
Oracle-Head quarters at California,USA.Oracle was working for its database rather than ERP.Oracle is famous for its finance and accounting module.It also provide Customer Relationship Management(CRM) s/w and Supply Chain management(SCM).
SAP- Stands for Systems Applications and Products.It is German Company.They develop ERP solutions for both small and large organizations**.** It also provide Customer Relationship Management(CRM) , Supply Chain management(SCM) and Product Life Cycle Management(PLM) s/w etc.
Odoo-It is an open source ERP.It can be customized based the requirements of organization. It was formerly known as Open ERP.
Microsoft Dynamics-US company with head quarters at Washington.Provides ERP package to midsized organization.Its user interface is vey good.They also provide CRM s/w.
Tally ERP-Indian Company with head Quarters at Banglore.Provide ERP soln.for accounting, inventory and payroll.
Benefits and Risks of ERP: The following are the be benefits of ERP system

1. **Improved resource utilization:** Installing ERP can reduce the wastage of resources and resource utilization can be improved.
2. **Better Customer Satisfaction:** Customer satisfaction means meeting the max. Customers requirements for a product or a service. With the introduction of web based ERP, a customer can place orders and make payments from home.
3. **Provides Accurate Information:**-ERP software can provide accurate information to customers than that of manual systems.
4. **Decision Making Capability:-** Accurate and relevant information helps to make better decisions for a system.
5. **Increased Flexibility:-**ERP system can adapt new changes easily.

6. **Information Integrity:-**The entire information about enterprise is stored in central database so that any dept. can get the information.

More over this ERP provides high security, unified reporting system, high speed delivery of product or services.

Risks of ERP:

1. **High Cost**:-The cost of Implementation of ERP is high. The cost of various modules and license fees are high. In addition to this the IT infrastructure, upgrading of N/w etc are the indirect costs related to ERP.
2. **Time Consuming**:-ERP Implementation process is time consuming it may take 1to 2 yrs. For the complete installation of ERP.
3. **Requirement of additional trained staff**:-For the smooth functioning of ERP trained and experienced persons is necessary. In addition the contribution of trained staff is very essential.
4. **Operational and Maintenance issues**:-Implementation of ERP needs a change in the current process of an enterprise. Sometimes it is difficult to for the employees to adjust with these changes. Once the ERP system implemented in an organization it can't be ended.

ERP and Related Technologies: The following are some of the related technologies used in ERP

Product Life Cycle Management (PLM):-PLM is the process of managing the entire life cycle of a product. The PLM has the following stages Introduction of new product, It's Growth in the market, It's Maturity and It's decline. It is performed for increasing marketing opportunities and for ensuring usage of latest technology. To create a new product the company must understand its customer, market and competitors.

Customer Relationship Management (CRM): Customers are the most important part of any enterprise. The success of an enterprise depends on good relationship with customers.CRM is a term that covers the policies used by the enterprise to manage their relationship with customers.CRM is an approach for creating, maintaining and expanding customer relationship.It includes capture,storage and analysis of customer information.The data thus collected from the customers are kept secretly and not shared with any third parties.

Management Information System (MIS): Information system collects ,stores and distributes information from an organization.It is also used for decision making,communication,coordination,control and analysis of an enterprise.Information system transforms raw data into a usefulinformation.An enterprise may contain different categories of employees like clerks,assistants,officers and managers.All of them are users of MIS.A MIS collects relevant data from inside and outside an enterprise and stored in a central database.This database is made available to its users.MIS can be considered as an integrated system of man and machine for providing information.

Supply Chain Management (SCM): It consists of all activities associated with moving goods from the supplier to the customer.It begin with collecting raw material and ends with delivering goods to customer.SCM aim to fast delivery of goods to customers thus increase the customer satisfaction.SCM s/w are available in the market.SCM activities include inventory management,transportation management,warehouse management,distribution etc.

Decision Support System (DSS): It is a computer program that analysis business data and present it so that users can make business decisions more easily. It provides information in the form of various reports.DSS needs an effective database management system to provide the support in decision making.

11.Trends and Issues in ICT

Mobile Computing:-Mobile computing means that we can send or receive data when we are moving. Mobile computing requires portable computing devices like laptops, tablets, smart phones etc.Thse devices has less power consumption, light weight features etc.

Mobile Communication:-Mobile comm. Do not require any physical connection between devices.
Generations in Mobile communication:- The different generations in mobile communication are
I. First generation Networks:1G Mobiles were designed for voice calling facility and were based on analog system.
II.Second Generation Networks:-2G Mobiles use digital communication. By using digital communication the quality of voice is greatly improved and the phone conversion was digitally encrypted. These n/w provide greater phone coverage. Picture Message and MMS (Multi Media Message) were introduced. The 2 popular standards introduced by 2G systems are GSM (Global System for Mobiles) and CDMA (Code Division Multiple Access).
1. GSM: It is a globally accepted standard for digital communication. It is a digital circuit switched n/w.The frequency band for GSM varies from 900MHz to 1800MHz.The n/w is identified using a SIM (Subscriber Identity Module).Users can select a handset of their choices. Different technologies used to enhance data commn. Features to GSM are GPRS(General Packet Radio Services) and EDGE(Enhanced Data rates for GSM Evolution).
GPRS and EDGE:GPRS is based on packet data.GPRS benefits from short access time and higher datarate.GPRS is a data only technology that helps to improve GSM voice quality.GPRS billing is based on volume of data transferred.
EDGE is a digital technology and is a super set of GPRS. EDGE can function on any n/w were GPRS deployed. It's data rate is 3 times faster than GPRS.In order to use EDGE our phone and n/w should support it.
2.CDMA:-Using CDMA several transmitters can send information simultaneously over a single communication channel.CDMA provides better coverage, better voice quality, high security than GSM.It also provide better signal reception even in low signal strength.
III.Third Generation network:3G wireless network offers high data rate than 2G.3G is also called wireless broad band. It can send voice, data, multimedia information using portable devices like mobilephones, tablets etc.
3G use WCDMA (wide Band Code Division Multiple Access) technology.
IV.Fourth Generation Network (4G):4G network is also called L.T.E(Long Term Evolution).4G network provides high speed and good quality images and videos.4G use OFDMA(Orthogonal Frequency Division Multiplexing).4G is wireless IP based access system.
V.FifthGeneration Network (5G):5G provide facility to unlimited access to information and sharing of data anywhere any time.It will offer faster, more energy efficient and cost effective data communication than its formers. By 2020 it is estimated that around 100000 crore devices will be connected to internet.5G will be a wireless solution to this.
Mobile Communication Services
Different services offered by Mobile commn.are
1. SMS(Short Message Services): It is a text messaging service used in mobile devices to exchange short messages.GSM system allows to send 160 characters. When a message is sent it reaches a SMSC(Short Message Service Center) which stores and forward messages to recipents.If recipients is not reachable SMSC waits and then retries later. Some SMSC provide a forward and forget option where the message send only once and if it fails the message is not send again. SMS uses SS7 protocol (Signaling System No.7).
2. MMS(Multimedia Messaging Service): MMS allows user to exchange multiple contents like text,audio,video,music etc over mobile devices. It does not limit the maximum no. of characters that can send.A MMS server is responsible for storing and handling the incoming and outgoing MMS.

3.GPS(Global Positioning System): GPS is a satellite based navigation system that is used to locate a geographical anywhere on earth using longitude and latitude. It is designed by US DOD(Dept.Of Defence).It consists of satellites, control and monitoring stations and receivers. The basis of GPS is a group of satellites that are continuously orbiting the earth and these satellites transmits radio signals that contain their excat location, time etc.These radio signals are received by receivers. This information from satellites are used to find the exact location GPS receivers need minimum 3 satellites to find 2D position.

GPS is used in vehicles of transporting companies to monitor the movement of their goods.GPS installed in Passenger vehicles help the driver to find the best route to a destination. In industrial appln. GPS is used in aircraft navigation, oil exploration, farming, and atmosphere studies.

4.Smart Cards:A smart card is a plastic card embedded with a computer chip/memory to stores and transacts data.The advantage of using smart card is that it is secure(data is protected),intelligent(it can store and process data) and is convenient(easy to carry).An. eg. For smart card is that RSBY card.In mobile phones SIM(Subscriber Identity Module) is used to store subscriber information and to identify a subscriber, roam access network other services like internet browsing, mobile banking, online trading. Smart cards also work as credit cards, ATM cards,fuelcards,authorization cards etc.

Mobile Operating System

A mobile operating system is the os used in mobile devices. The popular mobile os are Android from Google, iOS (iPhone Operating System) from Apple, Black Berry OS from Black Berry, Windows Phone from Microsoft.

Android Operating System: It was developed by Android Inc. by AndyRubin.Now Google acquired Android making a wholly owned subsidiary of Google.

The user interface of Android is based on touch inputs like dragging, swapping, tapping, pinching etc.It allows the user to customize the home screens with short cuts, applications and widgets. The Android os is based on Linux. Android uses linux kernel as it has a powerful memory management and process management system.

An Application Development Kit is available for the developers to develop applications like Google Map,Face book etc that run on Android. Android has a large community of developers writing applications called 'apps'.

Apps are developed using Java programming language. Most of these apps are available in 'PlayStore' and can be freely downloadable. The android os is further developed to be included in electronic devices like TV,Washing machine,watches etc.

ICT in Business: ICT has a remarkable impact on business. The use of ICT has improved the quality of service.

The internet has changed the shopping habits of people. Once the shopping turned online, retailers could know the items that the customers purchase, comparison with similar products, it's features etc.Once a customer purchases a product the product has to be billed and transported to his location with minimum cost and time.Some major developments in business through the use of ICT are

1.Social Network and big data analytics: It is a trend that the customers are searching websites before they buy products from a shop. They search website for it's price, user reviews and for comparison with similar products. Business firms are using the power of social media to gain a better understanding of their markets. The volume of such data from the social media is very large. This data comes from the posts of social media sites, digital pictures and videos. Analysis of large data is difficult. The data source can be either structured(from a database) or unstructured(from audio,documents,socialmedia posts ect).Big data analysis is the process of examining large data sets containing a variety of data to uncover hidden patterns, market trends, customer preferences etc.The various reports may help to refining marketing campaign, new revenue opportunities, better customer service etc.

2. Business Logistics: It is the management of the flow of goods in a business between the point of origin and to the point of consumption in order to meet the customer requirements. The goods can be any items like food,products,animals etc.The objectives of business logistics is to ensure the

availability of the right product,in the right quantity ant the right place and time for right customer at right cost. Business logistics include
1.purchase of material from a supplier
2.transportation of those materials to the company's production facilities
3.movement of finished goods through warehouse and transportation channels to customers.

RFID(radio Frequency Identification) technology can be used to identify,track or detect a wide variety of objects in logistics. RFID consists of tag and reader.The tag contain a microchip for storing data and an antenna for sending and receiving data. These tags can be inserted or pasted on product containers or products. Each RFID tag contains identifiable information about a product. In RFID commn. Takes place between a reader and tag.The advantage of RFID is that the tag need not be in a straight line with the reader. Also the reader can read the contents of a tag from several meters. FID tags are popularly used in supermarkets, tollbooths etc as an alternative to barcodes. It is also used in the census of animals like Tigers,Lions etc.

Information Security:
This section deals with various issues in cyber world like copy right, trade mark violations, cyber crimes etc.
Intellectual Property Right(IPR) The creative work like music,literary work,artistic work,discoveries,inventions,
Designs and s/w development etc came from the mind of it's creator is called Intellectual Property.The person involved in developing such properties must get it's benefit.WIPO(world Intellectual Property Organization)
Has created for such a purpose.It ensure that the creators of intellectual property are protected world wide and the inventors are recognized and rewarded.IPR owners can disclose their work to companies for exchange of money the company markets and sells this work to public.In this way IPR owner,the company and society Benefit from its creation.IPR is divide into 2 categories

1. Industrial Property 2. Copy Right

1.Industrial property: Industrial Property Right applies to industry, commerce and agricultural products. It protects Patents to inventions, trademarks, industrial designs and geographical indications.

Patents: It is the exclusive rights granted for an invention. An invention means a new product, or a procedure. To be patentable an invention must be
a.)relate to a process or product.
b.)to be new
c.)involve an inventive step
d.)be capable of industrial use
e.)not to be developed with the intention to harm others.

Patenet Protection means that the invention cannot be commercially made, used or sold with out the patent owners consent. The owner can sell the right to the invention to someone else and who will then become the new owner of the patent. The term for every patent in India is 20 yrs. From the date of filing patent application. Once Patent expires the protection ends and the invention can be used by public freely.

Trade Mark: It is a distinctive sign or logo that identifies certain goods or products by an individual or a company. A trade mark can be a logo,symbol,name etc.used to identify goods,
Products or services.It helps consumers to identify and purchase a product or service.A trade mark must be registered.The intial term for registration is 10years there after it canbe renewed.The effect of a trade mark registration is limited to that country.
Egs.for some popular Trademarks are logo of Amul,TATA,Reliance etc.

Industrial Design: An industrial design refers to the ornamental (attractive) or aesthetic (visual) aspects of an article. A design may consists of 3D features like shape, surface or 2D features like patterns, lines or colour.Industrial designs are applied to a wide variety of industrial products and handicrafts like medicalinstruments,jewellery,vehicles, textile designs etc.
Eg. Registered design of Coca-cola,iPhone.

Geographical Indications: Geographical indications are signs used on goods having a specific geographic origin and posses qualities due to that place of origin.Agricultural products posses some special qualities because of the influence of soil,climate etc.Place of origin may be a village,town or a country.
Eg. Palakkadan Matta Rice,Aranmula Kannadi

2.Copy Right:It is a legal right given to the creators of a work usually for a limited period of time.This work can be any form like books,music,painting,films,s/w etc.Under Indian copy right act a work is automatically protected by copy right when it is created.It should be noted that it is not necessary to register to get copyright.The copyright lasts for 60 years after the death of it's author.

Copy right in India is handled by the Copy Right Office.The different sysmbols used tospecify the registration of copy right are ®-Registered Trade mark,©-CopyRight,™- Un Registered Trade mark,
!-Sound Recording copy right.
The copy right holders of a work can prohibit
1.it's reproduction in alforms including print,recording
2.it's communication to public
3.it's broad casting
4.it's translation to other languages.
Computer S/w also can be copyrighted.
(Ref.Page 332, Table 11.4 of Text Book for comparison)

Infringement: Un authorized use of intellectual property right such as patents, trademark, copyrights etc are called Intellectual Property Infringement. It may be a violation of civil or criminal law. Patent Infringement is caused by selling a patented invention without permission from the patent holder. Similarly Trademark infringement occurs when one party uses a trademark that is identical to a trademark owned by other party. It is better to register trademarks to get legal advantages. Copyright infringement is the reproducing, displaying or broadcasting a work without
Permission from the copyright holder. It is also called Piracy. Software Piracy is the illegal copying, or use of a s/w.

Cyber Space: It is a virtual environment created by computers and other devices connected to a internet. The cyber space has influenced our lives greatly. Some of the egs. For this are

Today students may get various information like admission procedures, examination, NSS activities
Examination results from web portals maintained by Govt depts..So unnecessary waiting, travelling etc can be avoided.
The social media sites are also influencing people a great extend. Some of the posts in social media sites may become viral and can influence a society.
Another important area is the E commerce. Where people can buy products through e commerce websites. These websites provide catalogs which display different search options like price, brand, and similar products etc.Payments can also be made through net banking/debit/credit cards.

All most all banks offer Internet banking facilities to customers.Through this facility we can transfer funds,pay telephone bills,book tickets etc. This saves a lot of money and time.Netbanking

applications are developed for mobile devices like Smartphones,Tablets the customers can download such apps from banks website and can install in the devices.With this apps they can do banking transactions when you are travelling.

In fact Cyberspace is an unreal world in which communication over computer networks occurs. It is an information super highway where individuals gather information, interact, exchange ideas etc.

Cyber Crime: It is defines as a criminal activity in which computers or computer networks are used as a tool, target or a place of criminal activity.Various types of cyber crimes include phishng,hacking,denial of service etc.Cyber Crimes are basically divided into 3 categories
1. Cyber crimes against individuals 2. Cyber crime against property 3.Cyber crime against Government.
1.Cyber Crime against Individuals : A cyber crime is defined as an act in cyberspace against a person which cause physical or mental trouble to the person.Cyber crime against individuals are classified into
a. Identity Theft: Here a person uses another person's identifying information like their name, user id, credit card no etc without their permission to commit fraud (involved in) activities. This is done with the intention of transferring money, from victims bank A/c, payment for purchase, defaming(to damage his reputation, character etc) the person through social media. Before transferring money from bank account the thief may change the mailing address of the account holder so that the victim will not get any mail/sms alert regarding transfer of money. Using the stolen personal information the criminal may start a new account, apply for mobile phone connection etc.
b.Harassment: Posting indecent/vulgar comments focusing on gender, race, religion, nationality at specific individuals in chat rooms, social media, email etc is Harassment. The use of internet to harass someone is called cyber stalking. There are incidents like the creation of fake profiles of celebrities These Profiles are created using the photographs and personal information of celebrities with criminal intention.Common Characteristics of cyber stalking include threats, identity thefts,data destruction,sexual exploitation etc.It can destroy friendships,careers,self image etc.
c.Impersonation and Cheating: Impersonation is the act of pretending to be another persons for the purpose of harming the victim.Some times we may receive e mails seeking help for transferring large amount of money from s distant country.The sender states that the money is in the form of land ,gold etc.He also demand fore money for the clearance of legal procedures or registration. The victim may send money and loose large amount of money. This is an eg. For internet cheating/fraud.
d.Violation of Privacy: It is the intrusion into the personal life of another without a valid reason. It consists of distributing private information like personal data,photography, workplace monitoring videos etc.It's heard incidents like taking photographs of persons using hidden camera, mobile camera etc and posting such pictures in social media sites.This also an eg for violation of privacy.
e.Dissemination of Obscene Material: The distribution and posting of obscene material is one of the important cyber crimes today. Pornography on internet may take various forms. This may include displaying prohibited material on websites, use of computers for producing obscene matereials, downloading obscene materials etc.
It should be noted that various preventive mechanisms have been installed to avoid such crimes.Email service providers use spam filters that filters unwanted mails.During Financial transaction use secure sites for money transfer.
2. Cyber Crimes against Property: Cyber Crime against property includes all forms of property like credit cards, intellectual property etc.These crimes include include hacking, piracy, intrusion etc.Some classifications of cyber crime are

a.Credit card fraud: It involves unauthorized usage of another person's credit card information for the purpose of payments for purchases, or transferring funds etc.Some times the server of large financial organizations may hacked and the credit card information of all its customers may lost.
b.Intellectual Property Theft: Intellectual property theft include violation of copyright,patent,trademarketc.Now a days information about any topic is now freely available on the internet.Copying of another person's language,thoughts,ideas and presenting them as one's own original work is called Plagiarism.
c.Internet Time Theft: Almost all routers/modems used now a days have wireless internet facility.They provide sharing of internet at homes,schools,institutions etc.If you are not secure your wireless modem/router with passwords, unauthorized persons can theft your internet time.
3.Cyber Crime against Government: This include the cyber attacks against Govt. Sites/ computer networks in govt. organization.The different types of cyber attacks includes
a.Cyber Terrorism:It is a Cyber attack against sensitive computer networks like nuclear power plants,air traffic controls,gas line controls,telecometc.Cyber terrorism affect a nation's economic and technological infrastructure.
b.Website Defacement: Defacement of websites include hacking of govt. websites and posting derogatory (offensive/hateful/unpleasant)comments about govt. in those websites.
c.Attacks Against e government Website: This types of attacks include DoS(Denial of Service) and DDoS(Distributed Denial of Service) attacks.These attackers can gain access to a website.
Cyber Ethics: While engage in Cyber Space we should ensure that our actions do not harm others.For that we should follow some ethics.

Use antivirus, firewall and spam blocking s/w on your PC
Ensure secure websites for financial transactions.(Https:,lock symbol)
Do not respond or act on email sent from unknown sources.
Use complex passwords and change it frequently.

Do not select check boxes or click Ok buttons before reading the contents of any agreement
Do not hide your identity to fool others.
Do not use bad languages in social media sites and e mails.
Do not down load from unsecure/unknown sites.
Do not force the sites to remember your passwords.

Cyber Laws: It can be defined as a law governing the use of computers and internet. Criminal activities such as theft, fraud, forgery (fake) etc subject to Indian Penal Code.

Information Technology Act 2000: The IT Act 2000 in India forming rules for regulating the use of computer, server, computer n/w,data in electronic format. It gives legal acceptance for electronic communication. Various amendments on this bill have made. The act was developed to promote IT industry, regulate e commerce and to prevent cyber crimes. Compensation has to be given to affected persons if damage is done to the computer system or computer network by the introduction of virus,DoS etc.The IT bill passed in Indian Parliament in May 2000.

Cyber Forensics: Cyber Forensics is the process of using scientific knowledge for identifying, collecting, preserving and analyzing evidence from computer systems, networks, communication systems and storage device and to present these evidence to courts.

Infomania: Infomania refers to problems created by information overloading. It occurs due to the accumulation of information from many sources like internet, email, cellphones etc but cannot be processed.Infomania is the excess enthusiasm for collecting knowledge.Constantle checking emails,social media sites,online news etc are the symptoms of Infomania. Many people do this to keep themselves up to date and a fear to of being out from the group.Infomania results in neglecting more important things like duties to one's family, society etc .