Course Code   : BCS-011
Course Title   : Computer Basics and PC Software
Assignment Number   : BCA (1)-011/Assignment/16-17

Question 1: (Covers Block 1)   (7×4=28 Marks)
(a) A person has written a program for analysis of data. The program and data are available in written form with the person. List steps of activities that the person will have to follow to run the program on the data using a Computer. Also, explain the function of each component of a computer.
**(4 Marks)**

Ans:

- **Input:** This is the process of entering data and programs in to the computer system.
- **Storage:** The process of saving data and instructions permanently is known as storage. Data has to be fed into the system before the actual processing starts.
- **Processing:** The task of performing operations like arithmetic and logical operations is called processing.
- **Output:** This is the process of producing results from the data for getting useful information.
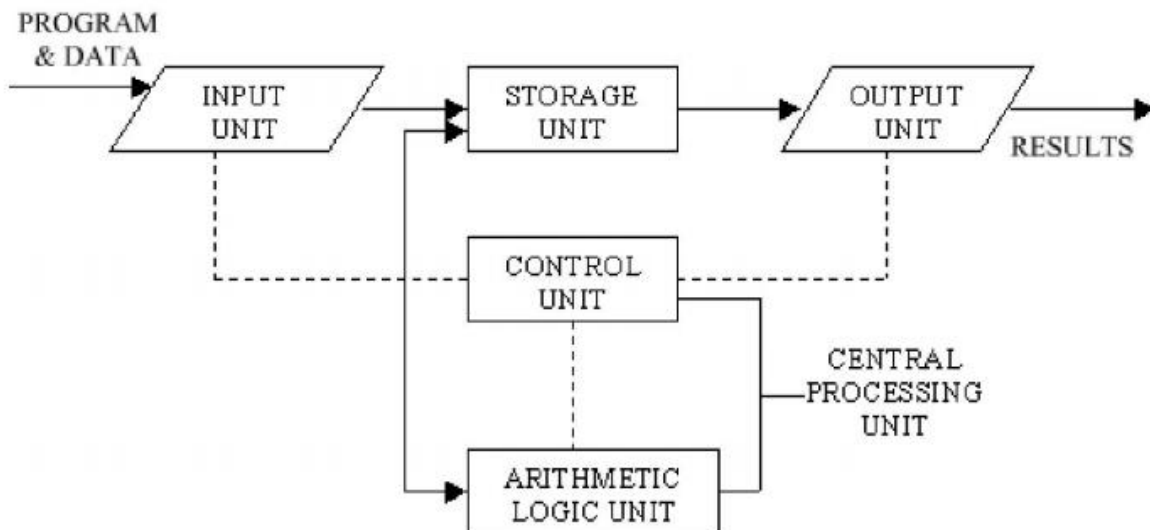
Component of computer:-
Operational Unit:-

- **CPU** is the brain of any computer system. It performs calculations, functions and controlling the operations.

- **The Arithmetic Logical Unit** is an important component of the CPU, which carry the actual execution of the instructions.

- **The control unit** determines the sequence in which computer programs and instructions are executed. It acts like the supervisor seeing that things are done in proper fashion. A von Neumann machine has single path between the main memory and control unit. This feature is known as **bottleneck**.
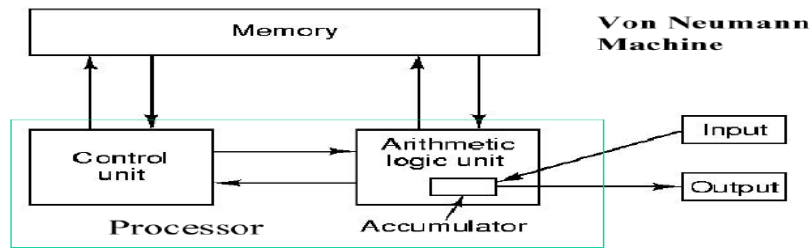
System Unit

- **Ports and Connectors :** A port is a connector located on the motherboard or on a separate adapter. Ports and Connectors allow the computer to communicate with different devices and peripherals attached with it.
- A **power supply** or power supply unit (PSU) is an internal component used to supply the power to the components of a computer.
- **Motherboard:** The motherboard is the main circuit board of a microcomputer. It is also known as the main board or system board.

(b) What is RAM in the context of computer? Why is it needed? What are SRAM and its role in a computer? A computer has primary memory still it requires hard disk, why? Explain the storage organization of a Hard disk and access time for it.(4 Marks)

Ans:

RAM (Random Access Memory)

- It is "**read / write**" memory stands for random access memory.
- It is a volatile memory.
- The CPU gets the program instructions from the RAM and after operation, it stores them in RAM.
- The CPU can Perform Read and write operation with RAM
- There are two important types of RAMs:- **SRAM and DRAM**

RAM is a primary memory in which operating system resides on run time. User can perform any task goes to RAM first. The CPU gets the program instructions from the RAM and after operation, it stores them in RAM. So, it is required by system.

Static RAM (or SRAM)

- Static RAMs retain stored information for long time as the power supply is on.
- Static RAMs are costly and consume more power. Static RAMs have a higher speed than dynamic RAMs.
- Static Ram is faster and so, it is used in cache memory.
- SRAM does not need to be refreshed or refreshed after long interval.

A hard disk is a magnetic disk that is used as a mass storage. It stores data permanently for future uses where primary memory stores data temporarily.

A magnetic disk is a circular platter of plastic that is coated with magnetized material and coil is used to perform the job of reading and writing on the magnetic surface that is known as head.
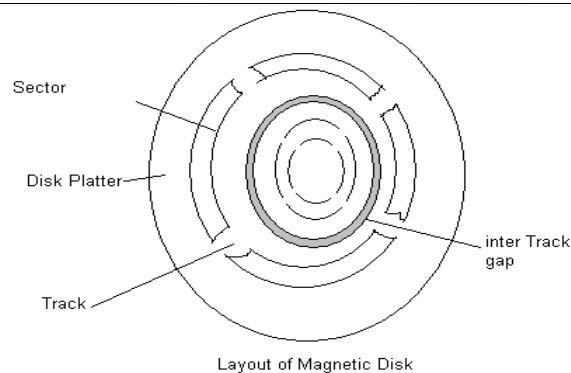
Layout of Magnetic Disk

Head of disk is a small coil that reads or writes on the position of disk rotating under it. Thus, we can say data are stored in concentric set of rings these are known as track. A track is divided into 10-100 sectors and these sectors should be fixed or variable. The width of track is equal to the width of head.

Seek time (Ts): The time required to move the read/write head on a specific (address) track. It depends on:-

- The position of the arm assembly when a read/write command is received.
- Seek time will be maximum, if the arm assembly is positioned on the outer most track.
- The average seek time is thus normally specified for most systems which is generally of the order of 10 to 15 milliseconds.

Latency Time (Lt) or **Search time:** Time required bringing the needed data under the R/W head. Latency time is also a variable and depends on the following two parameters:
- Distance of the desired data from the initial position of the head on the specified track.
- Rotational speed of the disk.

Thus, the total access time for a disk is equal to the seek time plus the latency time.

$$\text{Access time} = \text{Seek time} + \text{Latency time}$$

The average access time for most disk systems is usually between 10 to 100 milliseconds.

(c) Convert the following numbers as directed

(i) Decimal 325.6125 into binary and hexadecimal

Ans: $(101000101.1001)_2$,$(145.9)_{16}$

(ii) Decimal 32768 into hexadecimal and binary

Ans: $(8000)_{16}$, $(1000000000000000)_2$

(iii) Character s and T to ASCII and Unicode

Ans: **ASCII value of s➔115, t=116**

   Unicode s➔73, t=74

(iv) Hexadecimal AAA1 to decimal and binary

Ans:$(43681)_{10}$, $(1010\ 1010\ 1010\ 0001)_2$

(d) A 2 inch disk has 8 recording surfaces (4 plates), this disk has 512 tracks with each track having 512 sectors of 512 bytes each. Calculate the capacity and recording density for the disk. This disk rotates at a speed of 6000 rpm and has an average seek time of 10ms; what will be the average access time of the disk? (4 Marks)

Ans:

Suppose a HDD (or disk pack) having n plates, has:

Total number of recording surfaces (m) =8,

Tracks per surface (t) =512,
Sectors per track (p) =512,
Bytes per sector(s) =512,
п=3.14
d=2

Storage capacity of the disk	=	(m*t*p*s) bytes
	=	8*512*512*512 bytes
	=	(8*512*512*512)/(1024*1024*1024)
	=	1GB
Density	=	(s*p)/(п*d) byte/inches
	=	(512*512)/(3.14*2)
	=	41742.68 bytes/inch

(e) Compare and contrast the following printing technologies
(i) Impact versus non-impact printer
Ans:
Impact Printer
Technique where key hits the paper through ribbon is called impact. There are various Impact printers: - Dot matrix printers, Daisy wheel printers and Line printer.
Non-Impact Printers
Instead of using ribbon, ink that is stored in plastic cartridge is forced out of tiny holes directly onto the paper to form of characters. Some Non-impact printers are available in market namely **Laser printer** and **Ink-jet printer.**

(ii) Inkjet versus Laser printer
Ans:
Laser printers are one of the best printers available due to their high quality, high speed and high volume technology of printing. These printers produce very high quality text and graphics. Speeds of laser printers can range from 10 pages per minute to 200 pages per minute.

Ink-jet Printer: The Inkjet printer works on inkjet technology and produces better quality printouts than dot matrix printers. These print by spraying a controlled stream of tiny ink droplets accurately on the paper forming either dot matrix or solid characters.
- They are quieter in operation than impact printers.
- They can print finer, smoother details through higher print head resolution
- They can produce photographic-quality text and images.

(iii) Character versus dot matrix printers
Ans:
Character Printer: These printers can print only one character at a time. They work similar to a typewriter. The examples are Daisy Wheel Printer, Dot Matrix Printer and Inkjet Printer.
Dot-Matrix Printer : This is one of the most popular printers used for personal computing systems.
These printers are relatively cheaper compared to other technologies and use impact technology.

(iv) Line printers versus page printer
Ans:
Line Printer: As the name suggests a line printer is a high speed printer which is used to print one entire line of text at a time. Line printers are used to print large amount   of data, printing labels, accounting work and other large business printing applications in data centers. These are fast printers ranging in speed from 300 to 2500 lines per minute. Examples are Drum Printers and Chain Printers.

Page Printer: These are very high speed printers which produce high quality output. Their speed ranges from10-25 pages per minute. These printers are commonly used today. They use modern Laser Printer technology and print a whole page at one go. There are many varieties of laser page printers and so their prices range from base level upwards.

4

(f) Explain the characteristics/functions of any four input devices.(4 Marks)

Input Device

Devices are used to feed data into the computer. Some **input Devices are: -**

- **Keyboard:** It is a key frame plotted by the keys (Numbers, Alphabets, Special characters, Control keys and Arrow keys, Function key).
- **Mouse:** It is a pointing device. It has two or three buttons. Now optical mouse is available in the market.
- **Light Pen:** It is also a pointing device. It is used for writing the data on the screen pad.
- **MICR (Magnetic Ink Character Reorganization):** An input device generally used in banks (in Cheques) where a MICR recognizes the characters formed with special magnetic ink.
- **OCR (Optical Character Reorganization):** It is used to validate an answer sheet.

Output Device

It is used to display processed data or information from computer. There are various output devices available in market.

- **Monitor:** It is similar to TV also called VDU **Monochrome** and **Color.**
- **Plotter:** It is used to print graphical output.
- **Speaker:** Listening Music.
- **Printer:** A printer produces output usually on paper. There are two type of printer namely **Impact** and **Non-impact.**

(g) Explain the uses of following Software:

(i) Disk backup

Ans:

Backing up critical files to diskettes. This approach is commonly used by people who keep their checkbooks and personal finance data on the computer. Programs like Quicken and Managing Your Money always remind users when they quit the program to backup their data. If your hard disk crashes, you'll be able to reconstruct your checkbook balances. If you have other files (for example, chapters of a book you're working on), you'll want to backup every single day's work. Copying it to a diskette is quick and economical.

(ii) Disk management

Ans:

Disk Management is a tool used to manage system disks and their partitions locally or remotely. With disk management utility we ca n perform most disk related tasks such as initialization of disks, creation of volumes, formatting volumes, etc. It allows one to create fault-tolerant disk systems. Disk management is easy to use and its user interface and wizards allow us to carry out various disk related functions very efficiently. You can also manage remote computers using disk management.

(iii) Disk Checker

Ans:

Disk Checkers: Disk Checkers are used to check the integrity of the hard disk and Pen Drive/ Flash Drive. CHKDSK is a command which is used for this purpose. This command can be used on a computer running Windows operating system. It fixes the logical file system errors found in the disk/drive. It is a command line tools which is used to check the volumes for any potential errors. This command can be used to repair the problems related to bad sectors, lost clusters, directory errors etc.

(iv) System restores
Ans:
System restore roll backs system files, registry keys etc in case of system malfunction or failure, for later use. System restore is a facility available with modern windows operating system like Windows XP, Windows vista, Windows ME, Windows 7. System restore backs up system files such as .dll, .exe etc and saves it for later use. System restore helps us to restore computer's system files to an earlier state.
(4 Marks)

Question 2: (Covers Block 2) (7×4=28 Marks)
(a) What is cloud Computing? Explain with the help of an example. What are the features, advantages and disadvantages of cloud computing? Differentiate between cloud computing and Internet based architecture.(4 Marks)
Ans:
Cloud-based software services mean that the consumer does not own the hardware and software, but still gets the desired service. It is an IT delivery model that offers large-scale, shared infrastructure and computing resources as a service through self-service pay-per user access.

Key features of cloud computing are:
- **Infrastructure sharing:** Cloud computing enables dynamic sharing of resources so that demands can be met cost effectively.
- **Scalability:** To handle ever-increasing workload demands and support the entire enterprise.
- **Self-service:** Cloud computing provides customers with access to IT resources through service-based offerings. The details of IT resources and their setup are transparent to the users.
- **Pay-per-use:** Users pay for only what they use and are not charged when their service demands decrease.

Benefits:-
- Lower upfront cost to get started, lower time-to-market (as it takes less time to get a customer going on a cloud solution), allows the company to focus on the core business and not worry about hiring and constantly training its staff on the new technology etc.
- On the flip side for a Cloud-based solution, certain segment of customers such as large Banks and Financial institutions, Insurance companies may have security constraints in letting their data reside outside its premises .

Internet-based architecture: The users access the web servers through the web browsers on the client machines and over the internet. This led to very thin client based applications, which reside on corporate web servers. The advantage of web based applications is that they do not have to be tailored to run on specific platforms. But since the web applications cannot perform client side processing, they limit the user experience by turning the client computers into —dumb terminals. Web mails, online transactions are examples of web applications.

(b) Explain the features and uses of the following computer software:
(i) Anti-virus programs
(ii) Debuggers
(iii) Device drivers
(iv) Multimedia Authoring applications
(4 Marks)
Ans:
(i) It is software used to prevent, detect and remove malicious program and computer program. Now a day's Anti-virus software is available with various security feature that protect the computer from network threats.
Features:

- Antivirus and antispyware protection
- Firewall Control
- Web protection
- Device Control
- Privacy Service
- Parental Control

(ii) **Debuggers:** A debugger or debugging tool is a computer program that is used to test and debug other programs (the target program). Typically, debuggers offer functions such as running a program systematically or breaking at some event or specified instruction by means of a breakpoint, and tracking the values of some variables.

(iii) **Device Drivers** Device drivers are shared computer programs that provide an interface between the hardware devices and operating system or other higher-level programs.

Device drivers are operating system-specific and hardware-dependent. A device driver acts as a translator between the hardware device and the programs or operating systems that use it. A device driver is a particular form of software application that is designed to enable interaction with hardware devices. Without the required device driver, the corresponding hardware device fails to work.

(iv) It is a program that helps the author [user/programmer] write hyper *text* (or) multimedia application. Authoring tools usually enable a user to create a final application merely linking together. Objects such as paragraph of *text*, illustration (or) song can be embedded in a *web page* with the help of authoring tools.

(c)   What is the need of Operating system for a Computer System? Explain the file management, I/O Management and memory management in the context of Operating system with the help of an example.
(4 Marks)
Ans:

Operating system is system software; it is a large collection of programs and a program is a collection of instructions, which manages hardware and software resources of system. We cannot do any work on system without operating system. It works as an interface between hardware components and Users. There are two ways to interact with operating system:-

- **By System call**: **In this method,** The OS receives commands through an application program.   **For example:** Opening a file in MS-word.
- **By Operating System Command**: - **In this method**, user can interact with operating system directly using OS commands: **For example**- 'dir' command in MS-Dos.

When switch on the computer, it gets loaded into the main memory itself, this process is known **as booting**. During this process, all resources are checked by operating system itself, so it is known as **POST (Power on self-Test)**.
Services of OS:-

File Management:-
A file may be organized internally into records or it may simply be a stream of bytes. A file constitutes a logical unit of storage. It requires memory space on secondary storage. The OS allocates memory space for file on secondary storage and de-allocates after deleting a file.

Users and programs simply access the files by the name, The file management system identifies and manipulates files by the names. The file management system keeps track of the available space on each device connected to the system.
Input/output Services:-

Every operating system, large or small, provides input/output services for each device in the system. The operating system includes I/O device driver programs for each device installed on the system.

The I/O device drivers accept I/O requests and perform the actual data transfers between the hardware and specified areas of memory.

Process Control Management

A process is an executing program. Every executing program is treated as a process. A process acquires additional resources or releases the resources. The operating system maintains this process and various functions with processes, including scheduling and memory management.

Memory Management

The memory management system is required to load programs into memory in such a way that each program loaded into the memory for execution. In multiprogramming System, OS can manage multiple programs executes simultaneously. The OS load program into different partition in main memory. The OS co-ordinates one by one using different scheduling technique.

(d) Differentiate between the following
(i) Process and Thread
(ii) Serial Processing and Simple Batch processing
(iii)Timesharing and Multiprogramming operating systems
(iv) Unix and Windows
(4 Marks)
Ans:
(i) **Threads: It** is a smallest unit of process that executes sequentially and is interruptable so that the processor can turn to another thread.

Process: A collection of one or more threads and associated system resources. By breaking a single application into multiple threads, the programme has great control over the modularity of the application and the timing of application related events.

(ii) **In serial processing system**, a System can perform the task sequentially. If any problem is detected then whole process will restart automatically.

In batch processing system, OS makes different groups of similar jobs that is called **batch** and executes one batch one time. Batch processing is a technique in which an Operating System collects the programs and data together in a batch before processing starts. It has an automatic sequence to move one job to another job. There is no need of user interaction in batch processing system. Such type of processing system is used in payroll system, forecasting and statistical analysis.

(iii) **Time-sharing operating systems:-**

In time sharing system, multiple users access the system through separate terminals simultaneously, the operating system manages the execution of each user program small time interval or quantum of computation. It provides minimize response time and command entered through terminals.

In Multiprogramming system, more than one program is executed simultaneously, more than one program resides in the main memory, and operating system manages it one by one. Space of main memory, where Os resides is known as **monitor**. **In multiprogramming**, The CPU runs several programs concurrently. It keeps CPU busy, switching its attention from one program to another. **For example**, while one program is waiting some input or output operation, another program can use the processor because of high speed of processor. Multiprogramming method enables CPU to work on more than one program at any time, causing more effective utilization of CPUs processing power.

(iv) Unix and Windows:

UNIX is a multi-user, multi-tasking operating system can be used in different architect computer. It is portable because it is written in high level language.

Functionally, UNIX operating system is divided into three levels: - Kernel, Shell and application program.

Kernel: - Kernel is at the core of UNIX operating system. It loaded into main memory as soon as the system starts up. It manages memory, files and peripheral devices. There are various task performed by Kernel:-

- Manage memory
- Manage scheduling
- Organizing data transfer between I/O devices
- Accepting instruction from the shell and carrying them out.
- Provide security controls.

Shell:-

Shell is a program which interprets command given by the user. Command can be input through keyboard or shell script.

There are three types of shell-Bourne shell, **korn shell and c-Shell**. C-shell is popular because it is similar to c-programming language.

Windows:-

Windows OS, computer operating system (OS) developed by Microsoft Corporation to run personal computers (PCs). Featuring the first graphical user interface (GUI) for IBM-compatible PCs, the Windows OS soon dominated the PC market. An operating system is a powerful, and usually large, program that controls and manages the hardware and other software on a computer.

(e) Draw a flow chart and write an algorithm for a program that adds 10 even numbers starting from 2. (You must use looping).(4 Marks)

Ans:
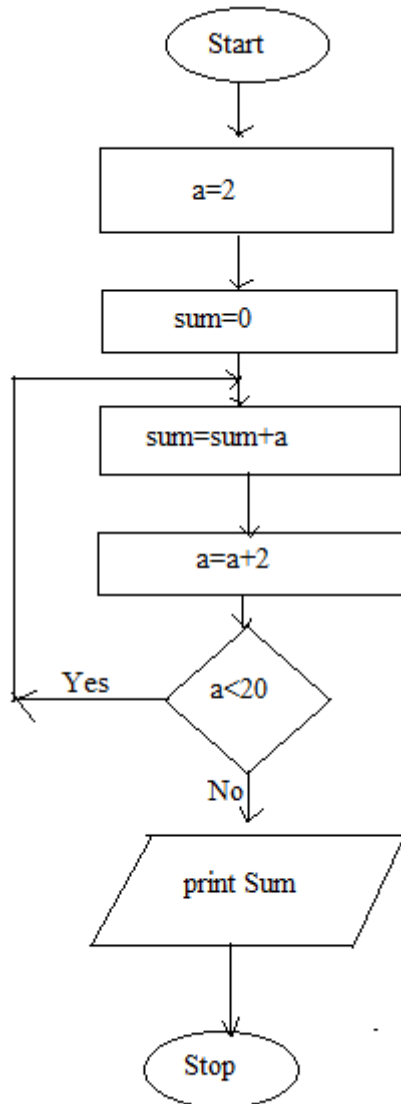
Algorithm

1. Start
2. Initialize sum=0, a=2
3. Sum=sum+a
4. a=a+2
5. if a<20 then
6. goto step 3
7. else
8. print sum
9. end

(f) Define the following terms in the context of programming with the help of an example:
(i) Data Types
(ii) Arrays
(iii)Subroutines and functions
**(iv) Logical and relational operators (4 Marks)**
Ans:

(i) Data Type:

Anything that is processed by a computer is called data. There are different types of data that can be given to the computer for processing.

Types:-

- Int →2 bytes in size.
- Float →floating point numbers, up to 4 bytes in size.
- Double → floating point number with double precision. These are organized in 8 bytes (64 bits)
- Char → character type size of 1 byte (8 bits). It is used to form the strings(sequence of characters).

(ii) **Array:** - an array is collection of data having same data type. For example: - int a [5]. Here "a" is an array of five-integer value. A number called index indexes all numbers. By default index is zero.
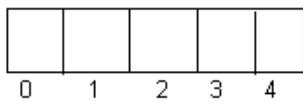
(iii)A subroutine is a type of subprogram, it is a collection of code within a larger program that performs a specific task and it is relatively independent of the remaining code. It is also called a procedure, routine or a method.

```
SUBROUTINE sub1 (A, B, SUM)
REAL A,B, SUM
SUM = A + B
RETURN
END
```

The subroutine sub1 in the main program will be invoked as follows

CALL sub1 (4, 5, SUM)

(iv) **Relative Operators: -** These operators are used to establish relationship between two operands or expressions and return result either 'True' (1) or 'False' (0).

Operator	Explanation
>	Greater than
<	Less than
>=	Greater than or equal
<=	Les than or equal
==	Equal or not

Example:

Num1	Operator	Num2	Result
3	>	2	True
3	<	2	False
3	>=	3	True
3	<=	2	False
3+2	>	2+2	True

Logical Operators: - These Operators work with conditions or conditional expressions and return either 'True' or 'False'. Three logical operators are used in c-language.

```
AND    →    &&
OR     →    ||
```

NOT. ➔   !

5

(g) Explain the following with the help of an example/diagram, if needed:
(i) Open Source Software Licensing
(ii) Timesheet Management
(iii) Use of Primary Key in a table of a database
(iv) Use of chart and macros in MS-Excel (4 Marks)
Ans:

(i) Open Source Software (OSS) is software that comes with source code, and provides to study, change and improve the software.

Key features:-

- **Users should be treated as co-developers :** The users are treated like co-developers and so they should have access to the source code of the software.
- **Early releases:** The first version of the software should be released as early as possible so as to increase one's chances of finding co-developers early.
- **Frequent integration:** Code changes should be integrated
- **Several versions:** There should be at least two versions of the software.
- **High modularization :**The general structure of the software should be modular allowing for parallel development on independent components.

Timesheet Management

A good timesheet management system in place is essential both for the customer projects as well as internal activities within the organization. Timesheets not only help the Project Manager in managing the project in a better manner but is also useful for maintaining employee records for payroll calculations as well as helps in improving the overall productivity of the organization.

(iii) Primary key is used to uniquely identify the record in table for example roll number in a table is primary key. It ensures user can not input duplicate values in the table. It is sued to access records from database easily.

(IV) Chart is used to display graphical representation of statistical data. Creating a chart in Microsoft Office Excel is quick and easy. Excel provides a variety of chart types that you can choose from when you create a chart. For most charts, such as column and bar charts, you can plot the data that you arrange in rows or columns on a worksheet in a chart. Some chart types, however, such as pie and bubble charts, require a specific data arrangement.

Macro → To automate repetitive tasks, you can quickly record a macro in Microsoft Office Excel. You can also create a macro by using the Visual Basic Editor in Microsoft Visual Basic to write your own macro script, or to copy all or part of a macro to a new macro. After you create a macro, you can assign it to an object (such as a toolbar button, graphic, or control) so that you can run it by clicking the object. If you no longer need to use a macro, you can delete it.

Question 3: (Covers Block 3) (6×4=24 Marks)
(a) What are the advantages of using computer Networks? What is a twisted pair cable? What are its characteristics? Compare and contrast the features of twisted pair cable to optical fiber cable in the context of data transmission. (4 Marks)
Ans:

Network is collection of computers and computing devices interlinked each other to make a communication.
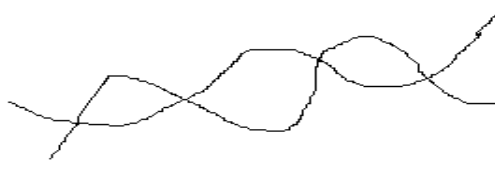
Advantages:

- **Resource sharing**: A computer programs, data, and equipment are available to anyone on the network. Anyone can use the resource available on network.
- **Availability:** Information is available all the times.

- **Reliability:** A network may have alternative sources of supply. In case of one resource failure, the others could be used and the system continues to operate at reduced performance.
- **Scalability:** The ability to increase system performance gradually by adding more Processors.
- **Cost:** Network Sharing is very cost effective.

Twisted pair cable. - It consists of two insulated copper wires, typically about **1mm** thick. It is generally used in local telephone communication. It is also used for digital data communication over the short distance upto 1 km. unshielded twisted pairs are used to connect computing devices. Data transferred rates are usually 1-2 megabytes per second.
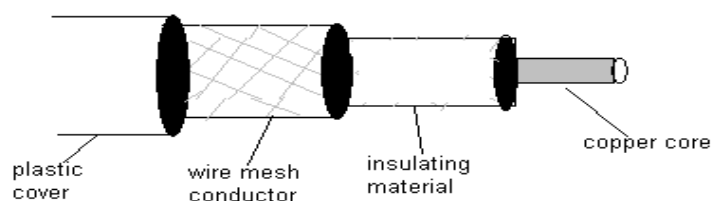

Advantage
- It is easily available.
- Low cost
- Used for analog and digital data transmission

Disadvantage
- Easily breakable
- Easily picks the noise

Co- axial cable: - it consists of a stiff copper wire as the core, surrounded by an insulating material. A mesh conductor encases the insulator. The plastic covers the outer mesh conductor. The signal is transmitted through the inner copper wire (copper core).

There are two type of co-axial cable:-
50 ohm and 75 ohm, 50 ohm is used for digital transmission for computer. And 75ohm is used for analog transmission for TV.

Advantage:
- It is used for digital and analog transmission
- It is used for longer distance
- Higher data transfer rate (100 mbps)
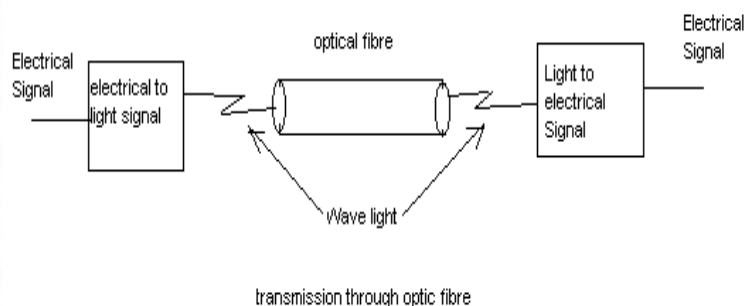
Dis-advantage:
- Difficult to connect to network device
- It required connector.

Fiber-optical cable: The fiber optic cable is a newest media that transmits light signals. It provides high transfer data rate 2 gigabyte per second. There are two source of light for optic fiber-

L**ED**- light Emitting diodes

LASER – Light Amplification by stimulating emission Radiation.

transmission through optic fibre

Advantage:

- Does not accept noise.
- Data can not be tapped by data thief
- These cables are much lighter than the copper cables

Disadvantage:

- It is costly not available easily.
- Difficult to install.
- Unidirectional – Propagation of light is unidirectional and we need two fibers for bidirectional communication.

(b) A company has one single office building having about 1000 rooms in a city from where it controls all its operations. What kind of network the company should make for its office? The company makes about 100 dealers all over the county; what kind of Network Company should make to communicate with dealers? Justify your answer. (4 Marks)

Ans:

MAN: Computers are located in the city and are connected using modems or telephone lines so that they can be easily connected with each other. MAN can be expended upto 50Km. So, it is more suitable for 1000 rooms available in a city. Network Company should make to communicate with dealers by using WAN because Computers are distributed all over the country.

(c) Explain the concept of DNS. Explain the components of an IP address with the help of an example. What is the significance of network mask? Explain with the help of an example.(4 Marks)

Ans:

Domain Name System (DNS) should keep track of address of each computer or any other internet device and email addresses. The name servers translate the web address or email address to respective IP address. This means that DNS maps an IP address to a name that can be accessed by this name over the network.

For example:

A web site **www.pixelesindia.com** maps with an IP address 145.56.45.30. here "pixelesindia" is a user name and .com is a DNS.

There are some list of Non-Geographical and Geographical Domain:-

Network masking is used to define the group of computer that belongs particular IP classes.

Class-A :

	Net ID	Host ID	Host ID	Host ID
Range of first Byte	**1 to 127***			
Subnet Mask	**255**	**0**	**0**	**0**

Class-B :

	Net ID	Net ID	Host ID	Host ID
Range of first Byte	**128 to 191**			
Subnet Mask	**255**	**255**	**0**	**0**

Class-B :

	Net ID	Net ID	Net ID	Host ID
Range of first Byte	**192-223**			
Subnet Mask	**255**	**255**	**255**	**0**

(d) Explain the functioning of a search engine. You want to identify the latest developments in the area of Internet. Make a search phrase which may give you good result.(4 Marks)
Ans:

Search engine is a web based tool or application that is used to search the information over the www.

- **Primary Search Engines**: Such search engines use web crawlers or spiders to traverse the web and scan websites for key words, phrases, to generate database of web pages having some indexing or classification**. Example**- Google and Alta Vista.
- **Web directory:** Web directories organize information into categories and subcategories or directories. We can search a web directory for all those entries that contain a particular set of keywords. **Example:**-Yahoo.
- **Meta search engines:** Such search engines pass your queries to many search engines and web directories and present summarized results to the users. **Example-** Dogpile, Infind, Metasearch.

(e) List major security threats while using email, chat and social networking. How can you reduce the risk due to these threats? (4 Marks)
Ans:
Major Security Threats:-
Computer Virus:- Computer virus is a small software program that is designed to enter a computer without users' permission or knowledge and spread from one computer to another.
Computer Worm Computer Worm is a program that is very similar to a virus. It has ability to self-replicate. It actively spreads itself over the network, copies itself from one disk drive to another or copies using email.

Trojan horse: - Some time users are tempted to download and install it on their machine without knowing what it does at the time of downloading software.

Spyware: Spyware is software that tracks and sends personally identifiable information or confidential information to third parties. Spyware is designed for commercial gain.

Prevent:-

- Ensure that the operating system and any program one uses are up to date with patches/updates.
- Block unwanted email viruses by installing a spam filter and spam blocker.
- When browsing the internet, always watch what one clicks and installs. Do not simply click OK to dismiss pop-up windows.
- Install anti-virus software; scan and update regularly.
- Install anti-spyware/anti-adware; scan and update regularly. It will remove and (depending on the software) prevent future adware and spyware.

(f) Explain the following in the context of Internet and its applications, giving their features and uses:

(i) E-learning

(ii) Social Networking

Ans:

(i) E-learning is one of the most used terms on the Internet that describes learning from electronic sources.

Advantages of E-learning are:

- It allows creation and fast update of online contents.
- User may use the contents at your own pace and convenience.
- It has the potential of providing new learning opportunities.
- It has the possibility of student's interaction.
- Flexibility of programme
- E-learning brings people together and allows sharing their experience and thoughts.
- One can do an e-learning programme from anywhere in a much easier way.

Disadvantages:-

- Successful e-learning system depends on good student interaction
- There is no teacher available to motivate the students.
- Sometimes, Student cannot get response immediately.

(ii) A social network is a network of individuals, which have some sort of interdependence on each other. This interdependence may be in the form of friendship, kinship, common causes and so on. A Social networking service may be offered through a web site on the Internet. Some of the popular social networking services are – Orkut, Facebook, Twitter, Linkedln, MySpace, Friend Finder, Yahoo! 360, Classmates and many more.

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