

ASSIGNMENT NO 02

QUESTION NO 1.

Q.1 ANSWER THE FOLLOWING QUESTIONS PROPERLY:

(a) Explain the important features of spreadsheet package.

A spreadsheet is a file that exists of cells in rows and columns and can help arrange, calculate and sort data. Data in a spreadsheet can be numeric values, as well as text, formulas, references and functions.

Basic Features of Spreadsheet Programs:

Grids, Rows & Columns. A spreadsheet consists of a grid of columns and rows.

Functions. Functions are used in the Spreadsheet software to evaluate values and perform different kinds of operations.

- Formulas.
- Commands.
- Text Manipulation.
- Printing.
- Title Bar.
- Menu Bar.
- three features of spreadsheet?

Features of spreadsheet software

Rows and columns. Through a spreadsheet's grid system of rows and columns, all of your information is neatly organized in one easy-to-read space.

- Formulas and functions.
- Data filtering and visualization.
- Custom formatting.
- Accounting.
- Analytics.
- Presentations.
- Project management.

Basic tools and functions of a spreadsheet.

- Function Categorization
- Arithmetic functions : offer basic tools to process numerical data.

- Statistical functions: have analysis tools, averaging tools.
- Date functions: process and convert dates.
- Logic functions: process logic data (AND, OR, etc.).
- Financial functions: process monetary data.

Example of a formula

A formula is an expression which calculates the value of a cell. Functions are predefined formulas and are already available in Excel. For example, cell A3 below contains a formula which adds the value of cell A2 to the value of cell A1.

Five uses of spreadsheet.

Once this data is entered into the spreadsheet, you can use it to help organize and grow your business.

- Business Data Storage.
- Accounting and Calculation Uses.
- Budgeting and Spending Help.
- Assisting with Data Exports.
- Data Sifting and Cleanup.
- Generating Reports and Charts.
- Business Administrative Tasks.

(b) Define system performance measures & process management tools in detail.

Performance measurement is something that happens in nearly every organisation, but it can be done in so many ways. How do business leaders determine the measurement system for individual and group performance?

Historically, annual performance reviews have been a common way to measure performance. But, do they really measure good performance vs. poor performance if it's only done once per year? Read on to learn some of the best practices you can implement to drive performance and improve your business strategy

Techniques

Every organization, whether commercial or non-commercial, prefers to monitor its overall progress yearly, monthly, or weekly. It depends on the amount of work and the type of organization.

To help organizations to keep a check on the progress of the organization, performance management software and tools are available. These tools simplify the work of the organization and provide benefits to the employees.

These performance management tools are:

- Performance Appraisals
- 360-degree Feedback
- Key Performance Indicators (KPIs)

- Personal Development Plans (PDP)
- Reward and Recognition Programmes

These are the top 5 performance management tools used by most organizations. Each of these tools has benefits, features, specifications, and flaws. It is upon the organization to decide which tools are suitable according to their needs and scope of growth.

Question no 2 .

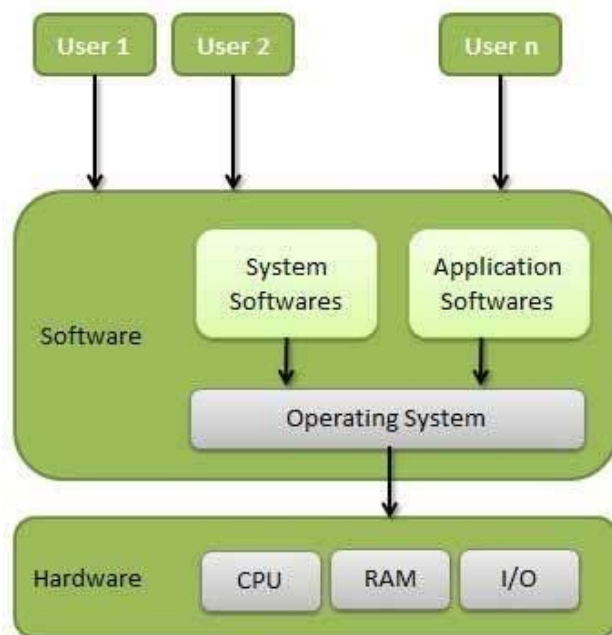
(a) Define the term operating system.

An Operating System (OS) is an interface between a computer user and computer hardware. An operating system is a software which performs all the basic tasks like file management, memory management, process management, handling input and output, and controlling peripheral devices such as disk drives and printers.

Some popular Operating Systems include Linux Operating System, Windows Operating System, VMS, OS/400, AIX, z/OS, etc.

Definition

An operating system is a program that acts as an interface between the user and the computer hardware and controls the execution of all kinds of programs.



Conceptual view of an Operating System

Following are some of important functions of an operating System.

- Memory Management
- Processor Management

- Device Management
- File Management
- Security
- Control over system performance
- Job accounting
- Error detecting aids
- Coordination between other software and users

(b) Explain the different functions of an operating system in detail.

An Operating System acts as a communication bridge (interface) between the user and computer hardware. The purpose of an operating system is to provide a platform on which a user can execute programs in a convenient and efficient manner. An operating system is a piece of software that manages the allocation of computer hardware. The coordination of the hardware must be appropriate to ensure the correct working of the computer system and to prevent user programs from interfering with the proper working of the system.

Example: Just like a boss gives orders to his employee, in a similar way we request or pass our orders to the Operating System. The main goal of the Operating System is to thus make the computer environment more convenient to use and the secondary goal is to use the resources in the most efficient manner.

Important functions of an operating System:

Security –

The operating system uses password protection to protect user data and similar other techniques. it also prevents unauthorized access to programs and user data.

Control over system performance –

Monitors overall system health to help improve performance. records the response time between service requests and system response to having a complete view of the system health. This can help improve performance by providing important information needed to troubleshoot problems.

Job accounting –

Operating system Keeps track of time and resources used by various tasks and users, this information can be used to track resource usage for a particular user or group of users.

Error detecting aids –

The operating system constantly monitors the system to detect errors and avoid the malfunctioning of a computer system.

Coordination between other software and users –

Operating systems also coordinate and assign interpreters, compilers, assemblers, and other software to the various users of the computer systems.

Memory Management –

The operating system manages the Primary Memory or Main Memory. Main memory is made up of a large array of bytes or words where each byte or word is assigned a certain address. Main memory is fast storage and it can be accessed directly by the CPU. For a program to be executed, it should be first loaded in the main memory. An Operating System performs the following activities for memory management:

Device Management –

An OS manages device communication via their respective drivers. It performs the following activities for device management. Keeps track of all devices connected to the system. designates a program responsible for every device known as the Input/Output controller. Decides which process gets access to a certain device and for how long. Allocates devices in an effective and efficient way. Deallocates devices when they are no longer required.

File Management –

A file system is organized into directories for efficient or easy navigation and usage. These directories may contain other directories and other files. An Operating System carries out the following file management activities. It keeps track of where information is stored, user access settings and status of every file, and more... These facilities are collectively known as the file system.

Question no 3.

Differentiate between Simplex, Half Duplex and Full Duplex with the help of proper examples.

In electronics, data transfer between sender and receiver follows a particular mode which is also known as Transmission mode. On the basis of nature of data sent and data received we can distinguish between Transmission mode as Simplex, Half-duplex and Full-duplex.

Key	Simplex	Half duplex	Full Duplex
Definition	Simplex Mode of transmission is the mode of transmission in which there is only unidirectional flow of data i.e., participant does only one task which means sender can only send the data and can't receive.	Half duplex Mode is the mode of transmission in which there is bi-directional flow of data but one at a time, i.e., Sender can send as well as receive the data but does one task at a time.	Full Duplex is the mode of transmission in which again there is bi-directional flow of data i.e., Sender can send as well as receive the data at the same time

Data flow	As mentioned in above point, data flow in case of Simplex Mode is UniDirectional	On other hand in case of Half duplex data flow is two-directional but one at a time.	In case of Full Duplex data flow is two directional and is simultaneous
Performance	Simplex Mode of transmission is treated as worst performing mode of transmission as it takes longest time in data transmission.	On other hand performance of Half-duplex is better as compared to Simplex but is lower as compared to Full-Duplex mode of transmission	Full-Duplex has best performance as compared to that of Simplex and Half-Duplex mode of transmission
Example	Example of Simplex mode of transmission are Keyboard and monitor.	However example of Half-Duplex mode of transmission is Walkie-Talkies.	On other hand example of Full-Duplex mode of transmission is Telephone

Question no 4.

Write short notes (in your own words) on the following topics:

(a) Multimedia Software

Multimedia refers to a combination of text, graphics, sound, animation and video. Multimedia is an essential element in many of the other software applications. For example, word processing and desktop publishing documents can be enhanced with graphics, photos and charts. Presentations can be more exciting when they include sound and animation. Reference and tutorial applications are more significant when they include pictures, sounds, animation and video information in addition to text. Multimedia software can be entertaining as well as useful. You can play music on your computer, listen to the sound an animal makes while browsing a disk about the zoo, hear actual recordings of famous speeches, view a video clip of a historic event, watch an animation about how a car engine works, hear the correct pronunciation of a word or phrase, view full color photographs of famous works of art or scenes from nature, listen to the sounds of different musical instruments, hear works of music by renowned composers, or watch a movie on your computer.

There is a large selection of multimedia software available for your enjoyment. Multimedia subjects include children's learning, the arts, reference works, health and medicine, science, history, geography, hobbies and sports, games, and much more.

Because of the large storage requirements of this type of media, most multimedia software comes on a compact disk (CD-ROM) format. To use multimedia software, your system must meet certain minimum requirements set forth by the Multimedia Personal Computer (MPC) Marketing Council. These requirements include a CD-ROM drive, hard disk drive with ample storage capacity, a 486 or better central processing unit (CPU), at least 4 to 8 megabytes of RAM (memory), a 256 color or better video adapter, and a sound card with speakers or headphones. Most new computers far exceed these specifications. A microphone is optional if you want to record your own sounds. While these are suggested minimum requirements, many multimedia programs would run better on computer equipped with a Pentium 4 or AMD Athlon CPU and 512 or more megabytes of RAM. Since much of the software purchased today contains multimedia content, we are now referring to multimedia software as the software used to create multimedia content. Examples include authoring software, which is used to create interactive multimedia courseware which is distributed on CD or available over the Internet. A teacher could use such a program to create interesting interactive lessons for the students which are viewed on the computer. A business could create programs to teach job skills or orient new employees.

Another category of multimedia involves the recreational use of music. Songs can be copied from CDs or downloaded from the Internet and stored on the hard drive. The music can then be burned onto a CD or transferred to a walkman-like device called a MP3 player or a "julebox." There is also software for the creation, arranging, performance and recording of music and video. Through the use of a MIDI (Music Instrument Digital Interface) connector installed in the computer, the computer can be connected to musical instruments such as electronic keyboards. A music student or musician could then create a multiple track recording, arrange it, play it back, change the key or tempo, and print out the sheet music. Another type of software which is recently gaining popularity is digital audio recording software, which allows the computer to be connected to a digital audio mixer, usually through USB or "Firewire" connectors, and record live music onto the hard drive. The "tracks" can then be mixed, effects added, and music CDs can then be made from the master recording. Also available are special cameras that allow you to record pictures and movies to your hard disk drive so they can easily be transferred into a multimedia presentation or edited and recorded back to video tape to create your own "home movie." These cameras range from the very inexpensive type that are wired to the computer and sit on a small stand near the monitor. This type of camera is sometimes referred to as an "Internet camera" or a "video chat" camera, and sometimes called a "golf ball" camera because many of them are in the shape of a golf ball. These cameras can also be used to send a live video feed over the Internet, such as a video "chat" or "teleconference" call. For people who enjoy

using home movie cameras, the price of digital video camcorders has dropped below \$400. Digital video cameras allow you to record movies and watch them with amazing clarity and resolution, or to transfer your video to the computer for editing using the included software. You can delete unwanted scenes, add titles and effects, fade in and out, create a sequence of scenes from smaller video files, and even add a musical sound track. Once the editing is complete, the movie can be recorded back to the videotape, or "burned" onto a DVD if your computer is equipped with a DVD-R or DVD-RW drive.

(b) Graphics, Text, Video Games and Animations.

A graphic is an image or visual representation of an object. Therefore, computer graphics are simply images displayed on a computer screen. Graphics are often contrasted with text, which is comprised of characters, such as numbers and letters, rather than images. Computer graphics can be either two or three-dimensional. Early computers only supported 2D monochrome graphics, meaning they were black and white (or black and green, depending on the monitor). Eventually, computers began to support color images. While the first machines only supported 16 or 256 colors, most computers can now display graphics in millions of colors. 2D graphics come in two flavors — raster and vector. Raster graphics are the most common and are used for digital photos, Web graphics, icons, and other types of images. They are composed of a simple grid of pixels, which can each be a different color. Vector graphics, on the other hand are made up of paths, which may be lines, shapes, letters, or other scalable objects. They are often used for creating logos, signs, and other types of drawings. Unlike raster graphics, vector graphics can be scaled to a larger size without losing quality.

3D graphics started to become popular in the 1990s, along with 3D rendering software such as CAD and 3D animation programs. By the year 2000, many video games had begun incorporating 3D graphics, since computers had enough processing power to support them. Now most computers now come with a 3D video card that handles all the 3D processing. This allows even basic home systems to support advanced 3D games and applications.

Text Graphics In Video

A text graphic is a visual representation of words. Text graphics are typically used in video to convey information quickly and concisely. They can range from representing something as simple as a set of instructions, to more complex ideas such as an explanation for why the viewer should buy your product or service.

Animation

Animation is a process where multiple snapshots are taken and manipulated by showing them in rapid succession, which creates the illusion that they are moving. This can be done using drawings, models, puppets, computer images, and more. Originally, the method of choice for

animation was drawings, which were applied to transparent sheets and then photographed. However, it is now more common for animation to be created using computer-generated imagery, also known as CGI.

Animation in Games

Games are meant to be interactive. When you play a game, you'll have complete control of the character and the camera. You're the one driving the story forward and making the character move. So not only does the animation need to look good, it needs to look good from every possible angle.

game animation example of a man with a gun

For instance, if the game is third person, and the player rotates the camera around they'll see the walk or run cycle from a completely new angle. This new angle can reveal things like knee pops that may not have been visible in the normal camera view. These are things that a game animator needs to take into account to ensure their animation holds up to whatever the player may throw at it. Unlike animation in a movie where the animator doesn't need to worry about how it will look from a side view or from behind, creating animations for games needs to look good from any angle. For instance, when implementing the principle of arcs into an animation, the animator needs to ensure the character is following nice smooth arcing motions from any camera angle.

Question no 5.

What are the important characteristics of a programming language? Define it in detail with the help of different examples.

There are various factors, why the programmers prefer one language over the another. And some of very good characteristics of a good programming language are,

1) Clarity, Simplicity And Unity: A Programming language provides both a conceptual framework for Algorithm planning and means of expressing them. It should provide a clear, simple and unified set of concepts that can be used as primitives in developing algorithms.

It should have

- It has minimum number of different concepts
- with Rules for their combination being
- simple and regular.

This attribute is called conceptual integrity.

2) Orthogonality: It is one of the most important feature of PL orthogonality is the property that means " Changing A does not change B".

If I take Real world example of an orthogonal system Would be a radio, where changing the station does not change the volume and vice versa.

When the features of a language are orthogonal, language is easier to learn and programs are easier to write because only few exceptions and special cases to be remembered.

3) Support for Abstraction:- There is always found that a substantial gap remaining between the abstract data structure and operations that characterize the solution to a problem and their particular data structure and operations built into a language.

4) Programming Environment: An appropriate programming environment adds an extra utility and make language to be implemented easily like

The availability of- Reliable- Efficient - Well documentation

Speeding up creation and testing by-special Editors- testing packages

Facility- Maintaining and Modifying- Multi Version of program software product.



Facility

5) Ease of program verification:- Reusability:

The reusability of program written in a language is always a central concern. A program is checked by various testing technique like

Formal verification method Desk checking Input output test checking.

We verify the program by many more techniques. A language that makes program verification difficult maybe far more troublesome to use. Simplicity of semantic and syntactic structure is a primary aspect that tends to simplify program verification.

6) portability of programs: Programming language should be portable means it should be easy to transfer a program from which they are developed to the other computer.

A program whose definition is independent of features of a Particular machine forms can only support Portability. Example: Ada, FORTRAN, C, c++, Java.