Ch1: OS & GUI- Role and Function

I. Define the following terms.

Desktop- A computer desktop represents the office desk where all necessary papers and station required for work are kept. It is the display screen where icons appear and from where all tasks of a computer system are performed. It is one of the basic components of the Graphic User Interface (GUI) screen. Thus, it is referred to as the first screen of the Windows which is seen after the booting of a computer system.

Title bar- The top most horizontal bar of any application or document window is called Title bar. It displays the name of the active document.

Task bar- The bar at the bottom of the desktop is known as the Task Bar. It contains the Start button and the icons of the documents and programs which are running. It also displays the sound option and the clock By default, the task bar is located at the bottom of the desktop screen.

Application Window- It is the primary window of an application where a user can work. This window contains the Title Bar, the Ribbon work area and the Quick Access Tool Bar. Though the user can open several applications at the same time, but there is only one window which remains active at a time.

Computer (icon)- It is one of the most important icons that show all the contents of a computer system. When you double-click this icon, it displays a list of all the system icons on the left pane of the window.

II. Differentiate between the following.
1) Cold Booting and Warm Booting

Cold Booting	Warm Booting
When power to a computer is cycled or a special reset signal is given to the processor, it is known as 'Cold Booting.	I Sometimes, the computer stops working or doesn't respond to the commands given by the users. In such case, the computer needs to restart under software control without switching off power. This is known as "Warm Booting".
A computer is turned on from a powerless state. Do not affect data or software in this booting.	An already running computer is reset. System may get damaged by warm booting.

2) Multiprogramming and Multiprocessing

Multiprogramming	Multiprocessing
In this system, more than one application/program/task is running on a single processor.	In this system, a number of applications programs/ tasks are running on multiple processors.
The user executes the program within the given time slot by the system.	The user executes the program independently with no time limit.

3) Character User Interface and Graphic User Interface

Character User Interface	Graphic User Interface
User interacts with computer using commands like text. Only keyboard is used as user input device.	User interacts with computer using Graphics like images, icons. Keyboard, mouse or any other pointing device are used as user input device.
It provides llittle flexible user interface and not easily changeable.	It provides highly flexible user interface and highly customizable.

III. Answer the following questions.

1) What is an Operating System? Give an example.

Ans- An operating system is an integrated set of programs that manages various resources and the overall operations of a computer system. It is designed to support the various activities of the computer system in a systematic way. E.g. Windows, Unix, Linux etc.

2) Why do we need an Operating System?

Ans- An operating system is required because of the following reasons:

✓ It coordinates different hardware and software components of a computer system.
✓ It supervises the various activities of a computer system and enables the computer to function in an efficient manner.
✓ It helps in the smooth functioning of various peripherals.
✓ In a multitasking operating system, it determines the order and time to be allowed for each application before giving another application a turn.
✓ It sends messages to the system operator about the status of the operation or any free that may have occurred while running an application.

3) Give the disadvantages of batch processing system.

✓ The system does not set any priority for the execution of the jobs
✓ Once the process begins, the execution of jobs automatically takes place one after the other.
✓ The CPU time and memory are underutilized.
✓ It is time-consuming.

4) What are the features of a single-user Operating System?

Ans- A single-user operating system has a single CPU and a set of input and output devices. It supports only one user at any point of time and only a particular job or program is loaded in the memory for execution. The most popular single-user operating system is MS-DOS. It can be further categorized as: Single-user, Single- task and Single-user, Multi-tasking.

5) Define 'Recycle Bin'? What is its significance in a Computer System?

Ans- Windows has provided a trash can to keep all the deleted items. When objects are deleted from the system, they go to the trash can known as the "Recycle Bin. Windows keeps 10% space of the hard disk for the Recycle Bin. All the deleted items remain in the Recycle Bin until the bin is emptied.

6) What are the functions of an Operating System? Explain.

Ans- Some functions of an operating system are explained below:

- ✓ Booting the computer- It is the start-up procedure of a computer system. It allows the user to perform the task with the help of a set of programs
- ✓ Loading the programs in the memory- As soon as the computer is ready, the operating system loads certain programs automatically in the primary memory. It helps the user to execute the programs for proper results.
- ✓ Managing resources - It coordinates between the software and hardware in the computer system.
- ✓ Detecting and correcting errors - If the supporting hardware or software does not work properly, then the operating system tries to rectify it and also guides the user to take necessary steps.
- ✓ Ensuring data security- It keeps different programs and data in such a way that they don't interfere with each other. It also protects itself from being destroyed by any user.
- ✓ Maintaining the internal clock of the system- It maintains the internal clock of the computer system even if the computer is shut down.

7) What is meant by 'Real Time Processing'? Give an example.

Ans- A system in which a transaction access and updating of the file is done immediately is called a real time processing. The essential feature of this process is to take further action on the basis of the result. In this process, the job is given very high priority to take further action leaving all other jobs.

8) Multiprogramming is also known as multi-tasking. Explain.

Ans- Sharing the processor, when two or more programs reside in memory at the same time, is referred as multiprogramming. Multiprogramming increases CPU utilization by organizing jobs so that the CPU always has one to execute. The operating system keeps several jobs in memory at a time. This set of jobs is a subset of the jobs kept in the job pool. The operating system picks and begins to execute one of the jobs in the memory.

9) What are the advantages of "Windows" as an Operating System? Explain.

Ans- The advantages of Windows as Operating System are:

- ✓ It is comparatively easier to use this operating system.
- ✓ It doesn't require us to be an expert in this field. A formal education will learn as how to use Windows operating system.
- ✓ It is widely supported by game manufacturers and most of the games run on a Windows system.
- ✓ The Windows operating system) can run nearly on any processor.
- ✓ There is a much larger selection of available software programs, utilities and games for Windows.

Ch3: Algorithm and Flowchart

1) What is Algorithm? Write the characteristics of a good algorithm.

Ans- An Algorithm is a textual representation of step-by- step procedure to solve a problem.

A good algorithm must incorporate the following characteristic:

✓ An algorithm should be precisely defined.
✓ It should clearly mention the inputs taken.
✓ Should produce valid outputs.
✓ Should have provision to handle errors or wrong input.
✓ Should be presentable. The language used should not be too informal.

2) Write the steps to develop an algorithm.

Ans- The steps to develop an algorithm are:

✓ Always begin the first step with START.
✓ Always write each step in a separate line and number them.
✓ Use the word INPUT or READ when we want an input.
✓ Use the word PRINT or WRITE when we want an output.
✓ Always end with STOP.
✓ Do not make the algorithm too long.

3) What is Flow Chart? Write the features of Flowchart.

Ans- A Flowchart is a diagrammatical representation of step-by-step procedure to solve a problem.

The features of Flowcharts are:

✓ It is an easy method of communication.
✓ It is independent of a programming language.
✓ It is the key to correct programming.
✓ It helps to plan and design a new system.
✓ It clearly indicates the task to be performed at each level.

4) Explain the different symbols that are used in flow chat?

Ans-

Shapes/ Symbols	Name of the Shape/Symbol	Use
⬭	Start/Stop box or Terminal Box	Used to show the start and stop of a flowchart
▭	Process box	Used to show the process or action
▱	Input/Output box	Used to show whether a data is input or output
◇	Decision box	Used when we need to select between two options

	Flow lines	Used to connect different shapes in a flowchart and indicates the direction of the flowchart
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