interview questions

1]Define the types of Operating System?

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Batch Operating System
Multi-Programming System
Multi-Processing System
Multi-Tasking Operating System
Time-Sharing Operating System
Distributed Operating System
Network Operating System
Real-Time Operating System

2]Explain DHCP?

--->..Dynamic Host Configuration Protocol (DHCP) is used to dynamically assign Internet Protocol (IP) addresses to each host on your organization's network. In this DHCP meaning, a host can refer to any device that enables access to a network.

3]Explain DNS?

-->The Domain Name System (DNS) is a hierarchical, distributed service that translates domain names into IP addresses, which computers use to connect to each other.

4]Explain paging?

-->Paging is a function of memory management where a computer will store and retrieve data from a device's secondary storage to the primary storage.

5]Explain segmentation?

-->Segmentation is the process of dividing a

company's target market into groups of potential customers with similar needs and behaviours.

6]Explain memory management?

-->Memory Management is the process of controlling and coordinating computer memory, assigning portions known as blocks to various running programs to optimize the overall performance of the system.

7]Explain the function of OS?

--->Memory management, Process management, File systems management, Device management, and Security and privacy.

An operating system's (OS) primary function is to manage files and folders. Operating systems are responsible for managing the files on a computer. This includes creating, opening, closing, and deleting files. The operating system is also responsible for organizing the files on the disk

8]Explain a kernel? Its architecture and working?

-->A kernel is a computer program that's central to an operating system and manages the system's resources and hardware.

9]Explain a shell script?

--->A shell script is a text file that contains a sequence of commands for a UNIX-based operating system. It is called a shell script because it combines a sequence of commands, that would otherwise have to be typed into the keyboard one at a time, into a single script.

10]Explain a page fault?

-->Page fault is a type of error that occurs when a program tries to access data that is not currently in the main memory or random access memory (RAM). When this happens, the operating system (OS) tries to retrieve the required data from the hard disk or another storage medium, and this process is known as a page fault

11]Explain a deadlock?

-->A deadlock is a situation in which two computer programs sharing the same resource are effectively preventing each other from accessing the resource, resulting in both programs ceasing to function. The earliest computer operating systems ran only one program at a time.

12]Define the necessary conditions for deadlock?

--->Hold and Wait
No Pre Emption
Mutual Exclusion
Circular Wait

13]Explain a semaphore?

--->A semaphore is a special kind of synchronization data that can be used only through specific synchronization primitives.

14]Explain a mutex?

--->A mutex is a mutual exclusion lock. Only one thread can hold the lock. Mutexes are used to protect data or other resources from concurrent access. A mutex has attributes, which specify the characteristics of the mutex.

15]Difference among kernel space and user space.

--->Userspace applications cannot directly access the system's hardware resources. They must make system calls to the kernel to request access to these resources. Kernel space is where the core of the operating system, the kernel, operates.

16]Write in brief the ping command.

--->ping is the primary TCP/IP command used to troubleshoot connectivity, reachability, and name resolution. Used without parameters, this command displays Help content. You can also use this command to test both the computer name and the IP address of the computer.

17]Explain UNIX?

--->UNIX is an operating system which was first developed in the 1960s, and has been under constant development ever since. By operating system, we mean the suite of programs which make the computer work. It is a stable, multi-user, multi-tasking system for servers, desktops and laptops..

18]Explain grep?

--->grep command Grep command in Unix/Linux is the short form of 'global search for the regular expression'. The grep command is a filter that is used to search for lines matching a specified pattern and print the matching lines to standard output.

19]Explain pipe?

--->A pipe is a short-term storage space for data that moves from one program to another. It's an

intermediary between two programs, allowing them to pass information back and forth quickly and efficiently

20]Difference among Thread & Process.

--->Process means any program is in execution. Thread means a segment of a process.

The process takes more time to terminate.

The thread takes less time to terminate.

It takes more time for creation. It takes less time for creation.

It also takes more time for context switching. It takes less time for context switching.

21]Explain a scheduling algorithm?

--->A scheduling algorithm is defined as a set of rules that determines which task to execute at a specific moment.

22]Explain pre-emptive and non-preemptive scheduling?

--->Preemptive Scheduling Non-Preemptive Scheduling

The resources are assigned to a process for a long time period. Once resources are assigned to a process, they are held until it completes its burst period or changes to the waiting state.

Its process may be paused in the middle of the execution. When the processor starts the process execution, it must complete it before executing the other process, and it may not be interrupted in the middle.

When a high-priority process continuously comes in

the ready queue, a low-priority process can starve. When a high burst time process uses a CPU, another process with a shorter burst time can starve.
It is flexible. It is rigid.
It is cost associated. It does not cost associated.
It has overheads associated with process scheduling. It doesn't have overhead.
It affects the design of the operating system kernel. It doesn't affect the design of the OS kernel.
Its CPU utilization is very high. Its CPU utilization is very low.
Examples: Round Robin and Shortest Remaining Time First FCFS and SJF are examples of non-preemptive scheduling.

23]Define the different scheduling algorithms.

--->First-Come, First-Served (FCFS) Scheduling
Shortest-Job-Next (SJN) Scheduling
Priority Scheduling
Shortest Remaining Time
Round Robin(RR) Scheduling
Multiple-Level Queues Scheduling

24]Explain booting process?

--->Booting is basically the process of starting the computer. When the CPU is first switched on it has nothing inside the Memory. In order to start the Computer, load the Operating System into the Main Memory and then Computer is ready to take

commands from the User.

25]Explain bias?

---> the term bias to refer to computer systems that systematically and unfairly discriminate against certain individuals or groups of individuals in favor of others.

26]Explain the difference among static memory allocation and dynamic memory allocation?

--->n static memory allocation, the memory cannot be changed while executing a program. In dynamic memory allocation, while executing a program, the memory can be changed. Static memory allocation is preferred in an array. Dynamic memory allocation is preferred in the linked list.

27]UNIX commands like touch, sed, grep.

--->Grep is used for finding text patterns in a file and is the simplest of the three. Sed can find and modify data, however, its syntax is a bit more complex than grep.The touch command updates the access and modification times of each file specified by the File parameter of each directory specified by the Directory parameter.

28]Explain a process and process table? Define different states of process?

--->Process goes through different states throughout the life cycle which are called process states. New, Ready, Running, Waiting or Block, Terminated or Completed, Suspend ready, and Suspend wait or blocked are different states in which process might go during the life cycle.

29]Define the benefits of multithreaded programming?

--->Multithreading enhances scalability by allowing a program to take advantage of multiple CPU cores or processors. Tasks can be divided into threads that can execute concurrently, enabling better utilization of available hardware resources and improving overall system performance as workload increases

30]Explain Thrashing?

--->Thrashing is a term used in the field of computing to describe a situation where a computer system or program is spending a significant amount of time and resources on non-productive tasks, resulting in poor performance.

31]Explain Belady's Anomaly?

----> Bélády's anomaly is the phenomenon in which increasing the number of page frames results in an increase in the number of page faults for certain memory access patterns. This phenomenon is commonly experienced when using the first-in first-out (FIFO) page replacement algorithm.

32]Explain starvation and aging?

---->Starvation

Occurs when a process can't get the resources it needs to complete its task. For example, a low-priority process might wait indefinitely for CPU allocation because high-priority processes are given precedence. This can be caused by unfair scheduling policies or resource allocation issues.

Aging
A technique that gradually increases the priority of processes that have been waiting for a long time. This ensures that processes waiting for a long time are given a fair chance to execute and eventually complete their execution. Aging can be used in various scheduling algorithms, such as priority scheduling and round robin.
Aging is used to avoid starvation. For example, in an aging technique, the OS might periodically increase the priority of incoming processes by giving each request's priority an aging factor. As time goes on, the aging factor raises the priority of the requests, guaranteeing that they eventually become the top priority requests

33]Explain a trap and trapdoor?

--->A trapdoor is a hinged or sliding door that's flush with the surface of a floor, ceiling, or roof. They are usually small in size and can be called hatches

34]Explain a daemon?

--->A daemon is a computer program that runs in the background instead of being under the user's direct control. It performs tasks from the moment the operating system boots until the computer is turned off.

35]Which application software's executed on OS?

--->The operating system (OS) manages all programs and applications on a computer, including

application software. The OS acts as an intermediary between the hardware and software, and provides services that facilitate program execution.

36]Define daemon objects and thread objects?

---->In an operating system, a daemon is a background process that performs system chores, while a thread is an execution unit within a process:

37]Give commands for finding process ID

--->To find the process ID of a Linux process, use the pidof command, like this: "pidof examplename". If you only know part of the PID name, you can use "pgrep examplenamefragment" instead. Replace "examplename" and "examplenamefragment" with the terms you want to search for.

38]How to edit, rename and move file in Linux?

--->To edit, rename, and move files in Linux, you can use the mv command:

Move a file to a new directory

Use the syntax mv source destination. For example, to move the file intro to the directory manual/chap1, type mv intro manual/chap1.

Rename a file

Use the syntax mv source destination. For example, to rename the file appendix to apndx.a, type mv appendix apndx.a.

Move a file to a new directory while keeping the same name

Use the syntax mv source destination. For example,

to move the file chap3 to the directory manual/chap3, type mv chap3 manual.
You can also use the rename command to rename files. The rename command is more flexible than the mv command, and it lets you rename multiple files at once.
Here are some options for the mv command:
--backup: Makes a backup of each existing destination file
-b: Does not accept an argument
-f, --force: Does not prompt before overwriting
-i, --interactive: Prompts before overwrite
39] Give 5 commands in Linux with explanation
--->s - The most frequently used command in Linux to list directories
pwd - Print working directory command in Linux
cd - Linux command to navigate through directories
mkdir - Command used to create directories in Linux
mv - Move or rename files in Linux
cp - Similar usage as mv but for copying files in Linux
rm - Delete files or directories
touch - Create blank/empty files
ln - Create symbolic links (shortcuts) to other files
clear - Clear the terminal display
cat - Display file contents on the terminal
echo - Print any text that follows the command
less - Linux command to display paged outputs in

the terminal
man - Access manual pages for all Linux commands
uname - Linux command to get basic information about the OS
whoami - Get the active username
tar - Command to extract and compress files in linux
grep - Search for a string within an output
head - Return the specified number of lines from the top
tail - Return the specified number of lines from the bottom
diff - Find the difference between two files
cmp - Allows you to check if two files are identical
comm - Combines the functionality of diff and cmp
sort - Linux command to sort the content of a file while outputting
export - Export environment variables in Linux
zip - Zip files in Linux
unzip - Unzip files in Linux
ssh - Secure Shell command in Linux
service - Linux command to start and stop services
ps - Display active processes
kill and killall - Kill active processes by process ID or name
df - Display disk filesystem information
mount - Mount file systems in Linux
chmod - Command to change file permissions
chown - Command for granting ownership of files or

folders
ifconfig - Display network interfaces and IP addresses
traceroute - Trace all the network hops to reach the destination
wget - Direct download files from the internet
ufw - Firewall command
iptables - Base firewall for all other firewall utilities to interface with
apt, pacman, yum, rpm - Package managers depending on the distribution
sudo - Command to escalate privileges in Linux
cal - View a command-line calendar
alias - Create custom shortcuts for your regularly used commands
dd - Majorly used for creating bootable USB sticks
whereis - Locate the binary, source, and manual pages for a command
whatis - Find what a command is used for
top - View active processes live with their system usage
useradd and usermod - Add a new user or change existing user data
passwd - Create or update passwords for existing users.
40]Which are deadlock handling situations?
--->A deadlock in OS is a situation in which more than one process is blocked because it is holding a resource and also requires some resource that is acquired by some other process. The four necessary

conditions for a deadlock situation are mutual exclusion, no preemption, hold and wait and circular set.