(63 questions)

Basic OS Interview Questions

1. Why is the operating system important?

OS is the most essential and vital part of a computer without which it is considered useless. It enables an **interface or acts like a link for interaction between computer software that is installed on OS and users**. It also provides services to users and a platform for programs to run on.

2. What are the different types of OS?

Types of OS:

- Batched OS (Example: Payroll System, Transactions Process, etc.)
- Multi-Programmed OS (Example: Windows O/S, UNIX O/S, etc.)
- Timesharing OS (Example: Multics, etc.)
- Distributed OS (LOCUS, etc.)
- Real-Time OS (PSOS, VRTX, etc.)

3. What are the benefits of a multiprocessor system?

A Multiprocessor system is a type of system that **includes two or more CPUs**. It involves the processing of different computer programs at the same time mostly by a computer system with two or more CPUs that are sharing single memory.

Benefits:

- Such systems are used widely nowadays to improve performance in systems that are running multiple programs concurrently.
- By increasing the number of processors, a greater number of tasks can be completed in unit time.
- One also gets a considerable increase in throughput and is cost-effective also as all processors share the same resources.
- It simply improves the reliability of the computer system.

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4. What is a Pipe and when is it used?

The pipe is generally a connection among two or more processes that are interrelated to each other. It is a mechanism that is used for inter-process communication using message passing. One can easily send information such as the output of one program process to another program process using a pipe. It can be used when two processes want to communicate one-way i.e., inter-process communication (IPC).

5. What are the different kinds of operations that are possible on semaphore?

- Wait()
- Signal()

6. What is a bootstrap program in OS?

It is generally a program that initializes the OS during startup i.e., first code that is executed whenever a computer system starts. OS is loaded through a bootstrapping process or program commonly known as booting. Overall the OS only depends on the bootstrap program to perform and work correctly. It also locates the kernel and loads it into the main memory after which the program starts its execution.

7. Explain demand paging?

Demand paging is a method that loads pages into memory on demand. This method is mostly used in virtual memory. In this, a page is only brought into memory when a location on that particular page is referenced during execution. The following steps are generally followed:

- Attempt to access the page.
- If the page is valid (in memory) then continue processing instructions as normal.
- If a page is invalid then a page-fault trap occurs.
- Check if the memory reference is a valid reference to a location on secondary memory. If not, the process is terminated (illegal memory access). Otherwise, we have to page in the required page.
- Schedule disk operation to read the desired page into main memory.
- Restart the instruction that was interrupted by the operating system trap.

8. What do you mean by RTOS?

Real Time Operating System (RTOS) is an operating system that is used for real-time applications i.e., for those applications where data processing should be done in a fixed and small measure of time. It performs much better on tasks that are needed to be executed within a short time. It also takes care of execution, monitoring, and all-controlling processes. It also occupies less memory and consumes fewer resources.

Types of RTOS:

- Hard Real-Time
- Firm Real-Time
- Soft Real-Time

RTOS is used in Air traffic control systems, Anti-lock Brake Systems, and Heart pacemakers.

9. What do you mean by process synchronization?

Process synchronization is basically a way to coordinate processes that use shared resources or data. It is very much essential to ensure synchronized execution of cooperating processes so that it will maintain data consistency. Its main purpose is to share resources without any interference using mutual exclusion. There are two types of process synchronization:

- Independent Process
- Cooperative Process

10. What is IPC? What are the different IPC mechanisms?

IPC (Interprocess Communication) is a mechanism that requires the use of resources like a memory that is shared between processes or threads. With IPC, the OS allows different processes to communicate with each other. It is simply used for exchanging data between multiple threads in one or more programs or processes. In this mechanism, different processes can communicate with each other with the approval of the OS.

Different IPC Mechanisms:

- Pipes
- Message Queuing
- Semaphores
- Socket
- Shared Memory

- Signals

11. What is the difference between main memory and secondary memory?

Main memory: Main memory in a computer is RAM (Random Access Memory). It is also known as primary memory or read-write memory or internal memory. The programs and data that the CPU requires during the execution of a program are stored in this memory.

Secondary memory: Secondary memory in a computer are storage devices that can store data and programs. It is also known as external memory or additional memory or backup memory or auxiliary memory. Such storage devices are capable of storing high-volume data. Storage devices can be hard drives, USB flash drives, CDs, etc.

12. What do you mean by overlays in the OS?

Overlays is basically a programming method that divides processes into pieces so that instructions that are important and needed can be saved in memory. It does not need any type of support from the OS. It can run programs that are bigger in size than physical memory by only keeping only important data and instructions that can be needed at any given time.

13. Write top 10 examples of OS?

Some of the top OS's that are used mostly are given below:

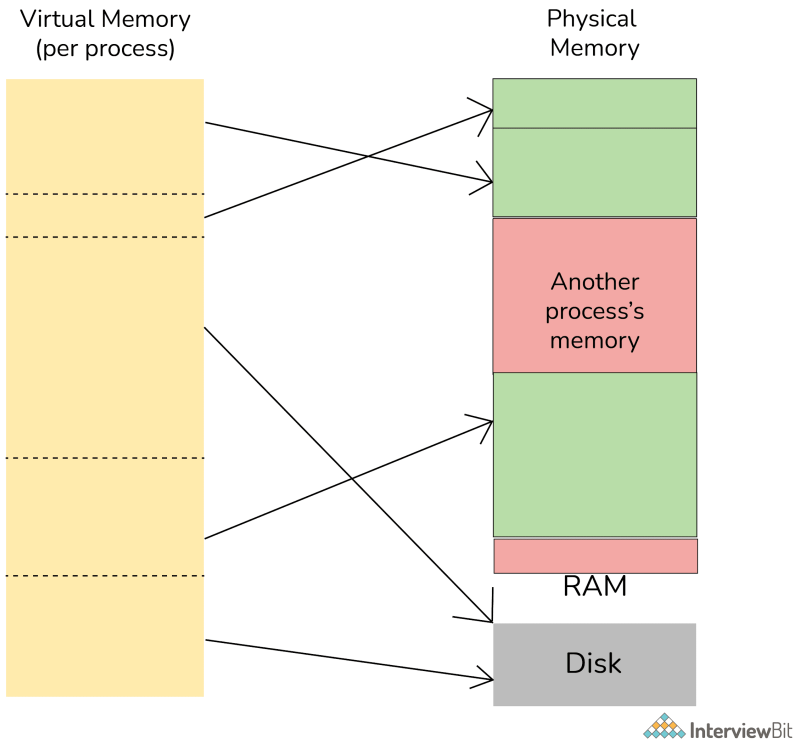
- MS-Windows
- Ubuntu
- Mac OS
- Fedora
- Solaris
- Free BSD

- Chrome OS
- CentOS
- Debian
- Android

Intermediate OS Interview Questions

14. What is virtual memory?

It is a memory management technique feature of the OS that creates the illusion to users of a very large (main) memory. It is simply a space where a greater number of programs can be stored by themselves in the form of pages. It enables us to increase the use of physical memory by using a disk and also allows us to have memory protection. It can be managed in two common ways by OS i.e., paging and segmentation. It acts as temporary storage that can be used along with RAM for computer processes.



15. What is thread in OS?

Thread is a path of execution that is composed of a program counter, thread id, stack, and set of registers within the process. It is a basic unit of CPU utilization that makes communication more effective and efficient, enables utilization of multiprocessor architectures to a greater scale and greater efficiency, and reduces the time required in context switching. It simply provides a way to improve and increase the performance of applications through parallelism. Threads are sometimes called lightweight processes because they have their own stack but can access shared data.

Multiple threads running in a process share: Address space, Heap, Static data, Code segments, File descriptors, Global variables, Child processes, Pending alarms, Signals, and signal handlers.

Each thread has its own: Program counter, Registers, Stack, and State.

16. What is a process? What are the different states of a process?

The process is basically a program that is currently under execution. The main function of an OS is to manage and handle all of these processes. When a program is loaded into the memory and it becomes a process, it can be divided into four sections — stack, heap, text, and data. There are two types of processes:

1. Operating System Processes
2. User Processes

States of Process:

Different states of the process through which process goes are given below:

- New State: In this state, a process is just created.
- Running: In this state, the CPU starts working on the process's instructions.
- Waiting: In this state, the process cannot run because it just waits for some event to occur
- Ready: In this state, the process has all resources available that are required to run but it waits to get assigned to a processor because CPUs are not working currently on instructions passed by the process.
- Terminate: In this state, the process is completed I.e., the process has finished execution.

17. What do you mean by FCFS?

FCFS (First Come First Serve) is a type of OS scheduling algorithm that executes processes in the same order in which processes arrive. In simple words, the process that arrives first will be executed first. It is non-preemptive in nature. FCFS scheduling

may cause the problem of starvation if the burst time of the first process is the longest among all the jobs. Burst time here means the time that is required in milliseconds by the process for its execution. It is also considered the easiest and simplest OS scheduling algorithm as compared to others. Implementation of FCFS is generally managed with help of the FIFO (First In First Out) queue.

18. What are the different terminologies to take care of in any CPU Scheduling algorithm?

- **Arrival Time:** Time at which the process arrives in the ready queue.
- **Completion Time:** Time at which process completes its execution.
- **Burst Time:** Time required by a process for CPU execution.
- **Turn Around Time:** Time Difference between completion time and arrival time.

Turn Around Time = Completion Time – Arrival Time

- **Waiting Time(W.T):** Time Difference between turn around time and burst time.

Waiting Time = Turn Around Time – Burst Time

20. What is Reentrancy?

Reentrant is simply a function in which various clients can use and shares a single copy of a program during a similar period. This concept is generally associated with OS code and does not deal with concurrency. It has two major functions:

- Program code cannot change or modify itself.
- Local data for every client process needs to be stored in different disks.

21. What is a Scheduling Algorithm? Name different types of scheduling algorithms.

A scheduling algorithm is a process that is used to improve efficiency by utilizing maximum CPU and providing minimum waiting time to tasks. It simply deals with the problem of deciding which of outstanding requests is to be allocated resources. Its main aim is to reduce resource starvation and to ensure fairness amongst parties that are utilizing the resources. In simple words, it is used to allocate resources among various competing tasks.

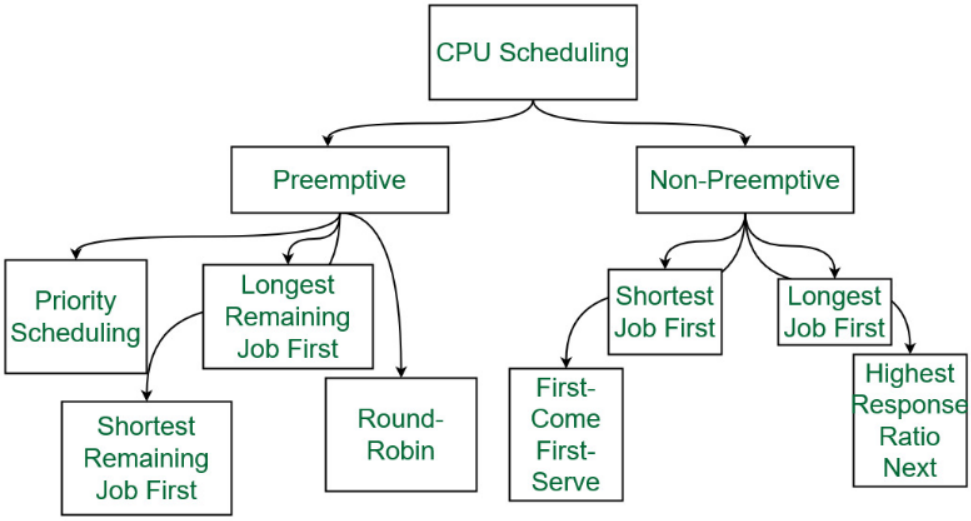
Types of Scheduling Algorithm

There are different types of scheduling algorithms as given below:

What are the different types of CPU Scheduling Algorithms?

There are mainly two types of scheduling methods:

- Preemptive Scheduling: Preemptive scheduling is used when a process switches from running state to ready state or from the waiting state to the ready state.
- Non-Preemptive Scheduling: Non-Preemptive scheduling is used when a process terminates , or when a process switches from running state to waiting state.



Comparison between various CPU Scheduling algorithms

Here is a brief comparison between different CPU scheduling algorithms:

Algorithm	Allocation is	Complexity	Average waiting time (AWT)	Preemption	Starvation	Performance
FCFS	According to the arrival time of the processes, the CPU is allocated.	Simple and easy to implement	Large.	No	No	Slow performance
SJF	Based on the lowest CPU burst time (BT).	More complex than FCFS	Smaller than FCFS	No	Yes	Minimum Average Waiting Time
LJFS	Based on the highest CPU burst time (BT)	More complex than FCFS	Depending on some measures e.g., arrival time, process size, etc.	No	Yes	Big turn-around time

LRTF	Same as LJFS the allocation of the CPU is based on the highest CPU burst time (BT). But it is preemptive	More complex than FCFS	Depending on some measures e.g., arrival time, process size, etc.	Yes	Yes	The preference is given to the longer jobs
SRTF	Same as SJF the allocation of the CPU is based on the lowest CPU burst time (BT). But it is preemptive.	More complex than FCFS	Depending on some measures e.g., arrival time, process size, etc	Yes	Yes	The preference is given to the short jobs
RR	According to the order of the process arrives with fixed time quantum (TQ)	The complexity depends on Time Quantum size	Large as compared to SJF and Priority scheduling.	Yes	No	Each process has given a fairly fixed time
Priority Pre-emptive	According to the priority. The bigger priority task executes first	This type is less complex	Smaller than FCFS	Yes	Yes	Well performance but contain a starvation problem
Priority non-preemptive	According to the priority with monitoring the new incoming higher priority jobs	This type is less complex than Priority preemptive	Preemptive Smaller than FCFS	No	Yes	Most beneficial with batch systems
MLQ	According to the process that resides in the bigger queue priority	More complex than the priority scheduling algorithms	Smaller than FCFS	No	Yes	Good performance but contain a starvation problem
MFLQ	According to the process of a bigger priority queue.	It is the most Complex but its complexity rate depends on the TQ size	Smaller than all scheduling types in many cases	No	No	Good performance

22. What is the difference between paging and segmentation?

Paging: It is generally a memory management technique that allows OS to retrieve processes from secondary storage into main memory. It is a non-contiguous allocation technique that divides each process in the form of pages.

Segmentation: It is generally a memory management technique that divides processes into modules and parts of different sizes. These parts and modules are known as segments that can be allocated to process.

Paging	Segmentation
It is invisible to a programmer.	It is visible to a programmer.
In this, the size of pages is fixed.	In this, the size of segments is not fixed.
Procedures and data cannot be separated in paging.	Procedures and data can be separated in segmentation.

It allows a cumulative total of virtual address spaces to cross physical main memory.	It allows all programs, data, and codes to break up into independent address spaces.
It is mostly available on CPUs and MMU chips.	It is mostly available on Windows servers that may support backward compatibility, while Linux has limited support.

It is faster for memory access as compared to segmentation.	It is slower as compared to paging.
In this, OS needs to maintain a free frame.	In this, OS needs to maintain a list of holes in the main memory.
In paging, the type of fragmentation is internal.	In segmentation, the type of fragmentation is external.
The size of the page is determined by available memory.	The size of the page is determined by the user.

23. What is thrashing in OS?

It is generally a situation where the CPU performs less productive work and more swapping or paging work. It spends more time swapping or paging activities rather than its execution. By evaluating the level of CPU utilization, a system can detect thrashing. It occurs when the process does not have enough pages due to which the page-fault rate is increased. It inhibits much application-level processing that causes computer performance to degrade or collapse.

24. What is the main objective of multiprogramming?

It refers to the ability to execute or perform more than one program on a single processor machine. This technique was introduced to overcome the problem of underutilization of CPU and main memory. In simple words, it is the coordination of execution of various programs simultaneously on a single processor (CPU). The main objective of multiprogramming is to have at least some processes running at all times. It simply improves the utilization of the CPU as it organizes many jobs where the CPU always has one to execute.

25. What is the difference between multitasking and multiprocessing OS?

Multitasking: It is a system that allows more efficient use of computer hardware. This system works on more than one task at one time by rapidly switching between various tasks. These systems are also known as time-sharing systems.

Multiprocessing: It is a system that allows multiple or various processors in a computer to process two or more different portions of the same program simultaneously. It is used to complete more work in a shorter period of time.

26. What do you mean by Sockets in OS?

The socket in OS is generally referred to as an endpoint for IPC (Interprocess Communication). Here, the endpoint is referred to as a combination of an IP address and port number. Sockets are used to make it easy for software developers to create network-enabled programs. It also allows communication or exchange of information between two different processes on the same or different machines. It is mostly used in client-server-based systems.

Types of Sockets

There are basically four types of sockets as given below:

- Stream Sockets
- Datagram Sockets
- Sequenced Packet Sockets
- Raw Sockets

27. Explain zombie process?

Zombie process, referred to as a defunct process, is basically a process that is terminated or completed but the whole process control block is not cleaned up from the main memory because it still has an entry in the process table to report to its parent process. It does not consume any of the resources and is dead, but it still exists. It also shows that resources are held by process and are not free.

28. What do you mean by cascading termination?

Cascading termination is a process termination in which if the parent process is exiting or terminating then the children process will also get terminated. It does not allow the child to continue processing as its parent process terminates. It is generally initiated by OS.

29. What is starvation and aging in OS?

When we use Priority Scheduling or Shortest Job First Scheduling, Starvation can happen, This algorithm is mostly used in CPU schedulers

Starvation: It is generally a problem that usually occurs when a process has not been able to get the required resources it needs for progress with its execution for a long period of time. In this condition, low priority processes get blocked and only high priority processes proceed towards completion because of which low priority processes suffer from lack of resources.

Aging: It is a technique that is used to overcome the situation or problem of starvation. It simply increases the priority of processes that wait in the system for resources for a long period of time. It is considered the best technique to resolve the problem of starvation as it adds an aging factor to the priority of each and every request by various processes for resources. It also ensures that low-level queue jobs or processes complete their execution.

Advanced OS Interview Questions

30. What do you mean by Semaphore in OS? Why is it used?

Semaphore is a signaling mechanism. It only holds one positive integer value. It is simply used to solve the problem or issue of critical sections in the synchronization process by using two atomic operations i.e., wait() and signal().

Types of Semaphore

There are usually two types of semaphores as given below:

- Binary Semaphore
- Counting Semaphore

Binary Semaphore	**Mutex**
It allows various process threads to get the finite instance of the resource until resources are available.	It allows various process threads to get single shared resource only at a time.

Its functions are based upon signaling mechanisms.	Its functions are based upon a locking mechanism.
Binary semaphores are much faster as compared to Mutex.	Mutex is slower as compared to binary semaphores.
It is basically an integer.	It is basically an object.

31. What is Kernel and write its main functions?

The kernel is basically a computer program usually considered as a central component or module of OS. It is responsible for handling, managing, and controlling all operations of computer systems and hardware. Whenever the system starts, the kernel is loaded first and remains in the main memory. It also acts as an interface between user applications and hardware.

Functions of Kernel:

- It is responsible for managing all computer resources such as CPU, memory, files, processes, etc.
- It facilitates or initiates the interaction between components of hardware and software.
- It manages RAM memory so that all running processes and programs can work effectively and efficiently.
- It also controls and manages all primary tasks of the OS as well as manages access and use of various peripherals connected to the computer.
- It schedules the work done by the CPU so that the work of each user is executed as efficiently as possible.

32. What are different types of Kernel?

There are basically five types of Kernels as given below:

- Monolithic Kernel
- MicroKernel
- Hybrid Kernel
- Nano Kernel
- Exo Kernel

33. Write difference between micro kernel and monolithic kernel?

MicroKernel: It is a minimal OS that executes only important functions of OS. It only contains a near-minimum number of features and functions that are required to implement OS.

Example: QNX, Mac OS X, K42, etc.

Monolithic Kernel: It is an OS architecture that supports all basic features of computer components such as resource management, memory, file, etc.

Example: Solaris, DOS, OpenVMS, Linux, etc.

MicroKernel	Monolithic Kernel
In this software or program, kernel services and user services are present in different address spaces.	In this software or program, kernel services and user services are usually present in the same address space.
It is smaller in size as compared to the monolithic kernel.	It is larger in size as compared to a microkernel.

It is easily extendible as compared to a monolithic kernel.	It is hard to as extend as compared to a microkernel.
If a service crashes, it does affect on working of the microkernel.	If a service crashes, the whole system crashes in a monolithic kernel.
It uses message queues to achieve inter-process communication.	It uses signals and sockets to achieve inter-process communication.

34. What is a time-sharing system?

It is a system that allows more than one user to access the resources of a particular system in many locations. In simple words, it performs multiple tasks on a single

processor or CPU. As the name suggests, it means to share time into multiple slots in several processes. It also allows different users from different locations to use a particular computer system at the same time therefore it is considered one of the important types of OS.

35. What is Context Switching?

Context switching is basically a process of saving the context of one process and loading the context of another process. It is one of the cost-effective and time-saving measures executed by CPU the because it allows multiple processes to share a single CPU. Therefore, it is considered an important part of a modern OS. This technique is used by OS to switch a process from one state to another i.e., from running state to ready state. It also allows a single CPU to handle and control various different processes or threads without even the need for additional resources.

36. What is difference between Kernel and OS?

Kernel: Kernel is a system program that controls all programs running on the computer. The kernel is basically a bridge between the software and hardware of the system.

Operating System: Operating system is a system program that runs on the computer to provide an interface to the computer user so that they can easily operate on the computer.

37. What is difference between process and thread?

Process: It is basically a program that is currently under execution by one or more threads. It is a very important part of the modern-day OS.

Thread: It is a path of execution that is composed of the program counter, thread id, stack, and set of registers within the process.

Process	Thread
It is a computer program that is under execution.	It is the component or entity of the process that is the smallest execution unit.
These are heavy-weight operators.	These are lightweight operators.
It has its own memory space.	It uses the memory of the process they belong to.

It is more difficult to create a process as compared to creating a thread.	It is easier to create a thread as compared to creating a process.
It requires more resources as compared to thread.	It requires fewer resources as compared to processes.
It takes more time to create and terminate a process as compared to a thread.	It takes less time to create and terminate a thread as compared to a process.

It usually run-in separate memory space.	It usually run-in shared memory space.
It does not share data.	It shares data with each other.
It can be divided into multiple threads.	It can’t be further subdivided.

38. What are various sections of the process?

There are basically four sections in the process as given below:

- Stack: It is used for local variables and returns addresses.
- Heap: It is used for dynamic memory allocation.
- Data: It stores global and static variables.
- Code or text: It comprises compiled program code.

39. What is a deadlock in OS? What are the necessary conditions for a deadlock?

Deadlock is generally a situation where a set of processes are blocked as each process is holding resources and waits to acquire resources held by another process. In this situation, two or more processes simply try to execute simultaneously and wait for each to finish their execution because they are dependent on each other. We can see a hand problem in our system whenever a deadlock occurs in a program. It is one of the common problems you can see in multiprocessing.

Necessary Conditions for Deadlock

There are basically four necessary conditions for deadlock as given below:

- Mutual Exclusion
- Hold and Wait
- No Pre-emption
- Circular Wait or Resource Wait

40. What do you mean by Belady's Anomaly?

In the Operating System, process data is loaded in fixed-sized chunks and each chunk is referred to as a page. The processor loads these pages in the fixed-sized chunks of memory called frames. Belady's Anomaly is a phenomenon in which if we increase the number of frames in memory, then the number of page faults also increases. It is generally experienced when we use FIFO (First in First out) page replacement algorithm.

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41) What is thrashing?

Thrashing is a phenomenon in virtual memory scheme when the processor spends most of its time in swapping pages, rather than executing instructions.

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42) What are the four necessary and sufficient conditions behind the deadlock?

These are the 4 conditions:

1) **Mutual Exclusion Condition**: It specifies that the resources involved are non-sharable.

2) **Hold and Wait Condition**: It specifies that there must be a process that is holding a resource already allocated to it while waiting for additional resource that are currently being held by other processes.

3) **No-Preemptive Condition**: Resources cannot be taken away while they are being used by processes.

4) **Circular Wait Condition**: It is an explanation of the second condition. It specifies that the processes in the system form a circular list or a chain where each process in the chain is waiting for a resource held by next process in the chain.

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43) What is FCFS?

FCFS stands for First Come, First Served. It is a type of scheduling algorithm. In this scheme, if a process requests the CPU first, it is allocated to the CPU first. Its implementation is managed by a FIFO queue.

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44) What is Banker's algorithm?

Banker's algorithm is used to avoid deadlock. It is the one of deadlock-avoidance method. It is named as Banker's algorithm on the banking system where bank never allocates available cash in such a manner that it can no longer satisfy the requirements of all of its customers.

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45) What is the difference between logical address space and physical address space?

Logical address space specifies the address that is generated by CPU. On the other hand physical address space specifies the address that is seen by the memory unit.

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46) What is fragmentation?

Fragmentation is a phenomenon of memory wastage. It reduces the capacity and performance because space is used inefficiently.

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47) How many types of fragmentation occur in Operating System?

There are two types of fragmentation:

- **Internal fragmentation**: It is occurred when we deal with the systems that have fixed size allocation units.
- **External fragmentation**: It is occurred when we deal with systems that have variable-size allocation units.

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48) What is spooling?

Spooling is a process in which data is temporarily gathered to be used and executed by a device, program or the system. It is associated with printing. When different applications send output to the printer at the same time, spooling keeps these all jobs into a disk file and queues them accordingly to the printer.

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49) What is a binary Semaphore?

Binary semaphore takes only 0 and 1 as value and used to implement mutual exclusion and synchronize concurrent processes.

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50) What are overlays?

Overlays makes a process to be larger than the amount of memory allocated to it. It ensures that only important instructions and data at any given time are kept in memory.

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51) When does trashing occur?

Thrashing specifies an instance of high paging activity. This happens when it is spending more time paging instead of executing.

52.What are 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.

53. What is the RR scheduling algorithm?

A round-robin scheduling algorithm is used to schedule the process fairly for each job a time slot or quantum and interrupting the job if it is not completed by then the job comes after the other job which is arrived in the quantum time that makes these scheduling fairly.

- Round-robin is cyclic in nature, so starvation doesn't occur
- Round-robin is a variant of first come, first served scheduling
- No priority, special importance is given to any process or task
- RR scheduling is also known as Time slicing scheduling

54. Write a name of classic synchronization problems?

- Bounded-buffer
- Readers-writers

- Dining philosophers
- Sleeping barber

55. What is caching?

The cache is a smaller and faster memory that stores copies of the data from frequently used main memory locations. There are various different independent caches in a CPU, which store instructions and data. Cache memory is used to reduce the average time to access data from the Main memory. .

56. What are orphan processes?

A process whose parent process no more exists i.e. either finished or terminated without waiting for its child process to terminate is called an orphan process.

57. What is a critical- section?

When more than one processes access the same code segment that segment is known as the critical section. The critical section contains shared variables or resources which are needed to be synchronized to maintain consistency of data variables. In simple terms, a critical section is a group of instructions/statements or regions of code that need to be executed atomically such as accessing a resource (file, input or output port, global data, etc.).

58. Write the name of synchronization techniques?

- Mutexes
- Condition variables
- Semaphores
- File locks

59. Define the term Bounded waiting?

A system is said to follow bounded waiting conditions if a process wants to enter into a critical section will enter in some finite time.

60. Explain the resource allocation graph?

The resource allocation graph is explained to us what is the state of the system in terms of processes and resources. One of the advantages of having a diagram is, sometimes it is possible to see a deadlock directly by using RAG.

61. Write a difference between paging and segmentation?

S.NO	Paging	Segmentation
1.	In paging, program is divided into fixed or mounted size pages.	In segmentation, program is divided into variable size sections.
2.	For the paging operating system is accountable.	For segmentation compiler is accountable.

3.	Page size is determined by hardware.	Here, the section size is given by the user.
4.	It is faster in the comparison of segmentation.	Segmentation is slow.
5.	Paging could result in internal fragmentation.	Segmentation could result in external fragmentation.
6.	In paging, logical address is split into that page number and page offset.	Here, logical address is split into section number and section offset.
7.	Paging comprises a page table which encloses the base address of every page.	While segmentation also comprises the segment table which encloses segment number and segment offset.

8.	A page table is employed to keep up the page data.	Section Table maintains the section data.
9.	In paging, operating system must maintain a free frame list.	In segmentation, the operating system maintains a list of holes in the main memory.
10.	Paging is invisible to the user.	Segmentation is visible to the user.
11.	In paging, processor needs page number, offset to calculate absolute address.	In segmentation, processor uses segment number, offset to calculate the full address.

62. What is seek time?

Seek Time: Seek time is the time taken to locate the disk arm to a specified track where the data is to be read or write. So the disk scheduling algorithm that gives minimum average seek time is better.

63. What is Buffer?

A buffer is **a memory area that stores data being transferred between two devices or between a device and an application**.