Operating System
1) Abbreviate SPOOLING(not definition)?
Ans: Simultaneous Peripheral Operation On-line.
2) Explain overlapping w.r.t SPOOLING?
Ans: I/O of one job is overlapped with processing of another job.
3) Which of the following statements is not true?
a) Real time systems require rigid time requirements
b) Real time systems are used in complex applications
c) Real time systems don't implement the concept of virtual memory most of the times
d) Real time systems have well defined constraints
e) None of these
Ans: (e)
4) What is the algorithm used by UNIX for cpu scheduling?
Ans: Simple Priority algorithm
5) What is the algorithm used by UNIX for worst case cpu scheduling?
Ans: Round-Robin algorithm
6) Which of the following is Not True.
a) Kernel is a program that is always running in a computer system
b) Kernel has a data structure called kernel stack in UNIX
c) A user process cannot preempt another user process
d) A process can make another process sleep
Ans: (d)
7) What is the difference between system call and function call? Ans:
System call is the interface between kernel and process where as function call is an
interface between the program and the function.
8) How many divisions are there in system calls and what are they?
Ans: 5 divisions
Process control
File manipulation
Device manipulation
Information
Maintenance
communications
9) Which of the following statements is CORRECT?
a) Job pool may hold more number of processes than can be accommodated in main memory
b) Job pool must hold as many processes as main memory can accommodate
c) Job pool cannot hold more number of processes than can be accommodated in main memory
d) Job pool always holds less number of processes than can be accommodated in main memory
Ans: (a)
10) Define critical region?
Ans: The section of code which causes inconsistency on execution of arbitrary I/o Interrupts
11) What is shared memory?
Ans: The common memory area used by process for communication between themselves
12) What is degree of multiprogramming?
Ans: Number of processes that can be executed simultaneously
13) Define semaphore?
Ans: Semaphore is variable used as a synchronization tool between processes that are running their critical regions.
14) What is the work done by execv system call?
Ans: It replaces the image memory space of the process with the object binary file of the one specified as an argument.
15) What is the maximum size of a file that UNIX can have?
a) 640 KB
b) 64 KB
c) 10 MB
d) 6 GB
e) 16 GB
Ans: (e)
16) A process can be divided into three regions what are they ?
Ans: Text, Data, Stack
17) Who controls degree of multiprogramming ?
Ans: Long term scheduler
18) What does medium term scheduler do ?
Ans: Swapping
19) What is a light weight process ?
Ans: Thread
20) What is the advantage of multiprogramming ?
Ans: Increases the efficiency of the CPU.
21) What is the main advantage of timesharing systems ?
Ans: Provides interaction between user and programs
22) What is symmetric multiprocessing ?
Ans: It is a multiprocessor system in which each processor runs an identical copy of os
23)Give an example for asymmetric multiprocessing system ?
Ans: Sun os ver 4.0
24) Give an example for symmetric multiprocessing ?
Ans: Encore's version of UNIX.
25) What is the difference between trap and interrupt ?
Ans: Signal generated by hard ware or software is called interrupt, trap is a software generated interrupt
26) What is the difference between synchronous and asynchronous I/O ?
Ans: Sync I/O: control remains with the process until the completion of I/O Async I/O: returns the control without waiting for I/o completion
27) What is cache coherency ?
Ans: In multiprocessor system each processor has its own cache when all processors run concurrently changes to a variable in one cache must be reflected in all remaining caches
28) Two registers are used for memory protection what are they ?
Ans: Base and Limit registers
29) MS-DOS is written for Intel processor which has no mode bit what is that processor?
Ans: Intel 8088
30) MS-DOS is written in which language ?
Ans: Assembly language 8088
31) What is the first OS that was not written in assembly language ?
Ans: Master Control Program
32) What is cascading termination ?
Ans: Termination of all child processes when its parent process is terminated
33) A task with only one thread is called ?
Ans: Heavy weight process
34) Define independent process ?
Ans: One process that cannot affect or be affected by other process
35) What is dispatcher ?
Ans: The module which gives the control of cpu to process
36) What is the main problem with priority scheduling ?
Ans: Starvation
37) What is aging ?
Ans: Technique of gradually increasing process priority
38) What is the solution to starvation in priority scheduling ?
Ans: Aging
39) In RR scheduling algorithm if there are 'n' processes in ready queue and time quantum is 'q' then how maximum time the process must wait for next time slot ?
Ans: (n-1)q
40) X-windows is developed at ?
Ans: Massachusetts Institute of Technology (MIT)
41) What is the os that was used to develop the visual effects in the movie "JURASSIC PARK" ?
Ans: Irix
42) Multics was developed at ?
Ans: MIT
43) POSIX abbreviation ?
Ans: Portable operating system interface
44) What is the os used in developing visual effects in the movie TITANIC and how systems worked together ?
Ans: Linux ,200
45) The '..' in the root directory points to what ?
Ans: Points to itself
46) Define NT in windows-NT ?
Ans: New Technology
47) Disk interleaving is mainly used for ?
Ans: For faster disc access
48) What was the os that controlled the sojourner robo launched by NASA of path finder ?
Ans: RS-6000
49) What is the command used to list only daemon processes ?
Ans: ps -x
50) Arrange the following in the ascending order of time consumption ?
(a) rotational latency
(b) seek time
(c) transfer rate
Ans: (bac)
51) When can you say that round robin policy is same as fcfs ?
Ans: When the time quantum is very large
52) What is the official name of WINDOWS-XP ?
Ans: Whistler
53) Why are segment replacement algorithms more complex than page replacement algorithms ?
Ans: Segments have variable size
54) What is virtual memory ?
Ans: Is a technique that allows execution of processes that may not be completely in memory
55) What is the difference between pager and swapper ?
Ans: A swapper manipulates the entire process whereas a pager is concerned with the individual pages of a process
56) What is a page fault ?
Ans: Access to a invalid page in memory
57) What is pure demand paging ?
Ans: Never bring in a page that is not needed into the memory
58) What is locality of reference ?
Ans: Is a set of pages that are actively used together
59) What is bellady's anomaly ?
Ans: Increase of page fault rate with the increase of allocated frames
60) Name two types of frame allocation algorithms ?
Ans: Equal allocation, proportional allocation
61) How can you distinguish page replacement algorithms?
Ans: Global and local allocation algorithms
62) Define thrashing ?
Ans: A process is thrashing if it is spending more time paging than executing
63) What is the solution for thrashing ?
Ans: Use local page replacement algorithms
64) What is work set model ?
Ans: The set of pages in the most recent working set page references
65) What is prepaging ?
Ans: In order to reduce the number of page faults, in pure demand paging, to get the initial locality into memory, at the starting of the execution of a program or to resume a swapped out process (when all its pages are on the disk), instead of bringing just one page we bring the working set of the process is called prepaging
66) What is the general minimum page size ?
Ans: 512 bytes (usually a 2 power of n)
67) What are the factors that affect the determination of page size ?
Ans: Internal fragmentation, locality, table size, I/O time, minimization of page faults
68) What are the advantages of inverted page table ?
Ans: The purpose of this management was to reduce the amount of physical memory that is needed to track virtual to physical address translation
69) What is binding? Ans: The mapping of logical address to physical address.
70) What is dynamic loading?
Ans: The postponement of the loading of a routine until it's called
71) Where is dynamic linking used?
Ans: In shared libraries.
72) Why is overlay technique not that efficient?
Ans: It requires a overlay driver which again consumes some i/o need to transfer an overlay.
73) Define an address space.
Ans: Is a set of addresses generated by cpu.
74) What does a memory management unit does?
Ans: The run time mapping of virtual address to physical address.
75) How many registers a MS-DOS operating system running on Intel 80x86 family of processors use?
Ans: Four
76) In which scheduling algorithm a different name is used concerning swapping and what are they?
Ans: Priority scheduling, roll in, roll out
77) What is a hole?
Ans: The memory available for allocation to different processes
78) What is dynamic storage allocation problem?
Ans: The method of satisfying a request of size n from a list of free holes.
79) Differentiate between external and internal fragmentation.
Ans: Presence of a number of holes that if were continuous would have satisfied execution of one or more processes is called external fragmentation. allocation of a complete frame to a process that needs just a part of that page to avoid the overhead in keeping track of a small hole that would have aroused
80) What do you mean by 50-percent rule?
Ans: For a given N blocks, another 0.5N blocks will be lost due to fragmentation.
81) What are the solution to external fragmentation ?
Ans: Paging and compaction
82) Define frame.
Ans: Physical memory is divided into fixed sized blocks
83) Which of the following is not true with regards to paging.
a) Paging is a solution to fragmentation.
b) It clearly separates between the user's view of memory and actual physical memory
c) Gives better protection to memory both of os and processes running currently
d) Paging increase context switch time
e) None of the above
Ans: (e)
84) How can be a page table implemented?
a) Using some dedicated registers
b) In the memory
c) Using translation look aside buffers
d) All the above
e) None
Ans: (d)
85) What is hit ratio?
Ans: The percentage of times that a page can be found in associative registers
86) What percent of the hit ratio the Intel group of processors claim to have?
Ans: 98 %
87) Why are the valid and invalid bits used?
Ans: To provide protection against invalid page references
88) what is the property that a given code should have to be sharable among processes?
Ans: It should be reentrant (pure code), non-self modifying code
89) What is the main difference between a page and a segment?
Ans: Segments can have variable size ,pages have fixed size
90) Segmentation is a dynamic relocation algorithm where as page is not necessarily be a dynamic relocation algorithm. (state whether true or false)
Ans: true
91) Define deadlock.
Ans: The inability to change the wait state of a process because the resources it has requested are held by other waiting processes.
92) What are the different types of resources and name them ?
Ans: Physical: I/O devices, memory, cpu cycles Logical: semaphores, monitors, files
93) What are the necessary conditions for a dead lock to occur?
Ans: No preemption, circular wait, mutual exclusion, hold and wait
94) What is a frozen state?
Ans: A process is said to be in frozen state when it's under starvation.
95) Define safe state.
Ans: A state is said to be in safe if the system can allocate resources to each process up to its maximum, in some order and still avoid a deadlock.
96) How many operations does a deadlock detection algorithm take to find out whether the processes are in deadlock or not (n= no. of processes, m=no. of resources)
Ans: m \* n2
97) Define starvation.
Ans: Indefinite blocking of a process in need of some resources that are currently held by some other process.
98) What is an atomic transaction?
Ans: A collection of instruction that perform a single logical function such that if two critical sections are executed concurrently, the result is equivalent to some their sequential execution in some unknown order.
99) What is Dining-Philosophers problem?
Ans: Is a simple representation of the need to allocate the several resources among several processes in a deadlock and starvation free manner.
100) What is a binary semaphore?
Ans: An integer variable which can have only two values 0 or 1.
101) What are the three requirements that a solution to critical section problem should satisfy?
Ans: Mutual exclusion, progress, bounded waiting
102) Why is process synchronization required?
Ans: Concurrently access shared data in a data inconsistent way
103) What is priority inversion?
Ans: If the high priority process needs to modify or read, kernel data that are currently held by low-priority processes then the high priority process must wait for the low-priority process to complete.
104) Define time quantum.
Ans: Is the maximum time a process can get the cpu.
105) What is a convoy effect?
Ans: The waiting of a number of small processes for one big process to get off the CPU.
106) Define dispatch latency.
Ans: The time taken by the dispatcher to stop the execution of current process and resume another process .
107) What is rendezvous?
Ans: The requirement of the processes to be synchronized in process communication due to the zero capacity buffer.
108) Which of the following is not true about virtual machine (VM)?
a) VMs give complete protection to system resources
b) VM system is perfect for os research and development
c) VM provide a mean to solve system compatibly problems
d) None of the above
Ans: (d)
109) What is a shell?
Ans: It's a command interpreter.
110) Arrange the following in the increasing order of volatility.
a) main memory
b) registers
c) cache
d) magnetic disk
Ans: (dacb)
111) What is monitor mode?
Ans: Is the mode in which the processor runs the privileged instructions.