CENTRE FOR DEVELOPMENT OF ADVANCED COMPUTING
Advanced Computing Training School
12, Thube Park, Shivaji Nagar
Pune 411 005

Date: July 17, 2006

Operating Systems Concepts (60 Minutes)

1. Trap is a _____ interrupt
   1. Synchronous
   2. Asynchronous
   3. Harware
   4. Operating Systems
2. User –friendly systems are
   1. Common among traditional mainframe operating systems
   2. Easy to Develop
   3. Required for batch oriented processing
   4. Becoming more common
3. The operating System Manages
   1. Memory
   2. Processors
   3. Disk and I/O Devices
   4. All the Above
4. Which of the Following operating systems use write through catches
   1. UNIX
   2. DOS
   3. ULTRIX
   4. XENIX
5. Real –time systems are
   1. Primarily used on mainframe computers
   2. Used for Monitoring events as they occur
   3. Used for program development
   4. To make computers easier to Use
6. FIFO scheduling is
   1. Preemptive scheduling
   2. Nonpreemptive scheduling
   3. Deadline scheduling
   4. Fair-share scheduling
7. The Kernel of the operating system remains in primary memory (and other part of the operating system remains in the secondary storage) because.
   1. It is mostly called (Used)
   2. It manages all interrupt calls
   3. It controls all operations in a process
   4. It is low level
8. A semaphore count of negative n means (s=-n) that the queue contains --- waiting processes.
   1. n+1
   2. n
   3. n-1
   4. 0
9. Two operation modes at AT are
   1. Real mode, protected mode
   2. Private mode, public mode
   3. Virtual mode dedicated mode
   4. Direct mode, Indirect Mode
10. Which is the correct definition of a valid process transition in an operating system
    1. Wake up : ready ➔ Running
    2. Dispatch : ready ➔ running
    3. Block : ready ➔ running
    4. Timer : ready ➔ blocked
11. Which CPU scheduling algorithm is the Preemptive scheduling?
    1. First Come First serve (FCFS)
    2. Round Robin (RR)
    3. Both
    4. None of the above.
12. Which CPU scheduling algorithm may suffer from the Starvation Problem
    1. Round Robin (RR)
    2. First Come First serve (FCFS)
    3. Priority scheduling
    4. None of the above.
13. A Multithreaded programming Benefits
    1. Increase Responsiveness to user.
    2. Utilization of multiprocessor architecture.
    3. Resource Sharing
    4. All of above
14. Circular waiting is
    1. not a necessary condition for deadlock
    2. a necessary condition for deadlock, but not a sufficient condition.
    3. a sufficient condition
    4. None of the above.
15. In an operating system using paging , if each 32-bit address is viewed as a 20-bit page identifier plus a 12-bit offset, what is the size of each page?
    1. 2^12 =4096 bytes
    2. 2^20 bytes
    3. 20 byte
    4. None of the above.
16. Advantage of memory management using virtual memory
    1. More Process can be loaded in the momery, to try to keep the processor busy
    2. A process whose image larger than memory can be executed
    3. Both 1 & 2
    4. None of the above.
17. Following is not a Disk scheduling algorithm:
    1. First Come First serve (FCFS)
    2. Round Robin
    3. SCAN
    4. LOOK
18. Which of the following condition is necessary for the deadlock
    1. Mutual exclusion and Hold-and-wait
    2. No preemption and circular wait
    3. Both 1 & 2
    4. None of the above.
19. LOOK disk scheduling algorithm:
    1. Select the request with minimum seek time from current head position.
    2. Moves the head from one end of the disk to other end, servicing request along the way.
    3. Moves the head only as far as the final request in each direction, then it reverse direction immediately, without first going all the way to the end of the disk.
    4. None of the above.

20. Thrashing is:
    1. CPU scheduling algorithm
    2. disk-scheduling algorithm
    3. High Paging Activity
    4. None of the above.
21. A 1000 Kbytes memory is managed using variable partitions but no compaction. It currently has two partitions of sizes 200 kbytes and 260 Kbytes respectively. The smallest allocation request in bytes that could be denied is for
    1. 151
    2. 181
    3. 231
    4. 541
22. Checkpointing a job
    1. Allows it to be completed successfully
    2. Allows it to continue executing later
    3. Prepares it for finishing
    4. Occurs only when there is an error in it
23. Which of the following is not a feasible schedule without violating any job deadline
    1. J2, J 4 ,J1 , J3
    2. J4,J1,J2,J3
    3. J4,J2,J1,J3
    4. J4,J2,J3,J1
24. An operating system uses a least recently used (LRU) page replacement algorithm for managing memory. Consider the following page string where each reference is made in one unit time.
    1,8,1,7,8,2,7,2,1,8,3,8,2,1,3,1,7,1,3,7
    Which of the following number of the page faults that are generated for this particular LRU case assuming that the process has been allocated four page frames?
    1. 2
    2. 5
    3. 4
    4. 6
25. With a segmentation, if there are 64 Segments and the maximum segment size is 512 words, the length of the logical address in bits is.
    1. 12
    2. 14
    3. 15
    4. 16
26. Which of the following are valid block devices on most default linux distributions?
    1. hard disks
    2. loopback devices
    3. serial ports
    4. virtual terminals
27. Which of these commands could you use to show one page of output at a time?
    1. more
    2. less
    3. sed
    4. grep
28. NFS runs over:
    1. TCP
    2. UDP
    3. RPC
    4. All of the above
29. The command to list user processes is
    1. more
    2. cat
    3. kill
    4. ps
30. The shell variable which holds the shell prompt is
    1. HOME
    2. SET
    3. PS1
    4. TERM
31. Spooling
    1. In spooling, a process writes its output to a temporary file rather than to an output device, such as a printer
    2. In spooling, a process writes its output to an output device, such as a printer
    3. Both 1 & 2
    4. None of the above.
32. A "critical section" of code is
    1. A section that is executed very often, and therefore should be written to run very efficiently.
    2. A section of the program that must not be interrupted by the scheduler.
    3. A section of the program that is susceptible to race conditions, unless mutual exclusion is enforced.
    4. A section of the code executed in kernel mode
33. The OS uses a round robin scheduler. The FIFO queue of ready processes holds three processes A, B, C in that order. The time quantum is 18 msec. A context switch takes 2 msec. After running for 13 msec, B will block to do a disk read, which will take 30 msec to complete. Trace what will happen over the first 100 msec. What is the CPU efficiency over the first 100 msec?
    1. 80%
    2. 70%
    3. 90%
    4. 100%
34. "Time Quantum" in Round Robin Scheduling algorithm:
    1. Time between the submission and completion of a process.
    2. Time for the disk arm to move to the desired cylinder
    3. Maximum time a process may run before being preempted
    4. Time required to switch from one running process to another
35. An OS uses a paging system with 1Kbyte pages. A given process uses a virtual address space of 128K and is assigned 16K of physical memory. How many entries does its page table contain?
    1. 1024
    2. 128
    3. 512
    4. 64
36. What is the "turnaround time" in scheduling algorithms?
    1. Time for a user to get a reaction to his/her input.
    2. Time between the submission and completion of a process
    3. Time required to switch from one running process to another
    4. Delay between the time that a process blocks and the time that it unblocks
37. "chmod " command in Linux
    1. Change the operating system mode
    2. Change the command mode

3. Change Access mode of file
4. None of the above.

38. "grep" Command is used
    1. make each column in a document in a separate file
    2. combine a file and write them into a temp file
    3. search a file for lines containing a given format.
    4. None of the above.
39. A program which is loaded into memory & is executing is commonly referred to as a:
    1. Software.
    2. Job.
    3. Process.
    4. Program
40. Bankers Algorithm is used for:
    1. Deadlock Characterization
    2. Deadlock Handling
    3. Deadlock avoidance
    4. Deadlock Detection
41. To enable a process to be larger than amount of memory allocated, we use:
    1. TLB.
    2. Fragmentation.
    3. Overlays.
    4. None of the above.
42. A _____ is a memory area that stores data while they are transferred between 2 devices:
    1. Spool
    2. Buffer
    3. Cache
    4. Kernel
43. The command used to display long listing of file is:
    1. ls –l
    2. ls –a
    3. ls –t
    4. ls –r
44. Which of the following symbols represent redirection
    1. -
    2. <
    3. &
    4. |
45. Which of the following statements is not true vfork()
    1. suppresses the parent's execution .
    2. uses the parent's current thread of execution
    3. is designed to accommodate the execv function.
    4. copies the parent's address space.
46. If the O_NONBLOCK flag is set,
    1. the calling process is blocked
    2. the calling process is not blocked
    3. process does not wait for response
    4. process waits for response
47. Write a command which will find all the files under root, which is '/', with file type is file. '-atime -30′ will give all the files accessed less than 30 days ago. And the output will put into a file call December.files.
    1. find / -type f -atime -30 > December.files
    2. find / -type f -atime -30 < December.files
    3. find / -type f > December.files
    4. find / -f -atime -30 > December.files
48. The F_GETLK command
    1. tries to check to see if a lock can be granted.
    2. If a conflicting lock exists, fcntl will overwrite the flock structure passed to it with the conflicting locks information.
    3. If there are no conflicting locks, then the original information in the flock structure will be preserved, except the l_type field will be set to F_UNLCK.
    4. All of the above
49. Write a command to display first field from the /etc/passwd.The file is separated by ":"
    1. cut –d ":" –f1 /etc/passwd
    2. cut –d ":" /etc/passwd
    3. cut –f1 /etc/passwd
    4. None of the above
50. By default which access permission is not granted to a file
    1. Execute
    2. read
    3. write
    4. read and execute