OSG202 - HaiAnh

1.	**None of the other choices**	Which of the following statements about the CPU's handling interrupts is incorrect? * None of the other choices The CPU branches to a new instruction sequence The hardware saves the old PC location The processor ceases to execute the current sequence of instructions
2.	**D**	____ is the partitioning of a single server, each of which can support a different operating * Multiprocessing Multithreading Shared processing Virtualization
3.	**B**	Consider a computer system that has cache memory, main memory (RAM) and disk, and OS uses virtual memory. It takes 1 nsec to access a word from the cache, 10 nsec to access a word from RAM, and 10 msec to access a word from the disk. If the cache hit rate is 95% and main memory hit rate is 99%, what is average time to access a word? * a. 1.445 nsec b. 5,001.445 nsec c. 5,000.495 nsec d. 5,000.95 nsec
4.	**B**	Booting a general purpose computer involves the following steps except * a. Loading the OS b. Loading the command interpreter c. Loading one or more bootstrap loaders d. Execution of a ROM-based POST sequence
5.	**C**	As one proceeds down the memory hierarchy (from inboard memory to offline storage), which of the following conditions is correct? * Decreasing access time None of the other choices

		Decreasing cost per bit Decreasing capacity
6.	**D**	The two basic types of processor registers are: * User-visible and user-invisible registers None of the other choices Control and Status registers General and special registers
7.	**D**	Consider a computer system that has cache memory, main memory (RAM) and disk, and OS uses virtual memory. It takes 2 nsec to access a byte from the cache, 20 nsec to access a byte from RAM, and 10 msec to access a block of 1000 bytes from the disk. If a book has 1000 pages, each with 50 lines of 80 characters each, How long it will take to electronically scan the text for the case of the master copy being in each of the level as one proceeds down the memory hierarchy (from inboard memory to offline storage)? * 1 msec, 10 msec, 5 sec 1 msec, 10 msec, 10 sec 2 msec, 20 msec, 10 sec 4 msec, 40 msec, 20 sec
8.	**C**	The main characteristics of layered system does not include: * A. Upper layer can only call functions of closely lower layer B. Each layer has well defined functions C. Each layer runs independently D. Many layers
9.	**D**	Which of special register in the CPU points to the top of the current stack in the memory? * PC PSW IR SP
10.	**D**	

A CPU may have multiple execution units, so that can carry out multiple instructions in the same time is called: *
0/1
None of the other choices
Multicore
Pipeline
Superscalar

11. **B** Consider a computer system that has cache memory, main memory (RAM) and disk, and OS uses virtual memory. It takes 2 nsec to access a word from the cache, 20 nsec to access a word from RAM, and 10 msec to access a word from the disk. If the cache hit rate is 95% and main memory hit rate is 99%, what is average time to access a word? *
5,000.99 nsec
5,002.89 nsec
2.89 nsec
5,001.9 nsec

12. **D** Information that must be saved prior to the processor transferring control to the interrupt handler routine includes: *
0/1
PSW
None of the other choices
PSW and Contents of processor registers
PSW and PC

13. **D** Examples of general purpose stored program computers include the following except *
0/1
Personal computers
Network servers
Workstations
MP3 player

14. **B** The ways that input/output can be done is? *

DMA (Direct Memory Access)
All of the other choices
Busy waiting
Interrupt

15. **D** List of memory location, that contains the executable program, the program's data, and its stack is called: *
0/1
set of resources
all of the other choices

address memory
address space

16. **C** Which is not an example of a resource that is commonly space-multiplexed? *
0/1
Video RAM
Main memory
CPU
Hard drive

17. **C** Which of the following is not a step in the boot process? *
1/1
The BIOS is activated by powering on the CPU
Configuration and customization settings are checked
The antivirus program checks all files for viruses
The operating system is loaded into RAM

18. **C** Which of special register contains the Mode Bit (user or kernel)? *
1/1
Program Counter (PC)
None of the other choices
Program Status Word (PSW)
Instruction Register (IR)

19. **C** Which is not an example of a resource that is commonly time-multiplexed? *
1/1

CPU
Graphics accelerator
Main memory
Network interface

20. **A** Where is the position of the operating system in computer system:
1/1
Above the hardware and under the user interface program
Between the user interface program and the application Program
In user space
None of the other choices

21. **A** Which of the main bus in the IBM PC computer that can run at 66 MHz and transfer 8 bytes at a time? *
1/1
PCI (Peripheral Component Interconnect)
ISA (Industry Standard Architecture)
None of the other choices
ISA and PCI

22. **A** Which of the following statements about Electrically Erasable PROM (EEPROM) is correct? *
1/1
Can be erased and rewritten
Unprogrammable
Volatile
None of the other choices

23. **B** The major operating system services provide mecha-nisms for secure and efficient are: *
1/1
Communication between processes
All of the other choices
Execution of a program, I/O operations performed by it, and detecting and reporting errors caused by it
File manipulation

24. **C**

Which of the following instructions should be allowed only in kernel mode? *
1/1
ADD of two numbers
AND of two numbers
Disable all interrupts
Read the time-of-day clock

25. **D** As one proceeds down the memory hierarchy (from in-board memory to offline storage), which of the following conditions is correct? *
1/1
Increasing cost per bit
Decreasing access time
None of the other choices
Increasing capacity

26. **D** The main characteristics of exokernels is: *
1/1
A subset of the resources is given in user mode
The program, called the exokernel runs in kernel mode
Exokernels need only keep track of which virtual machine assigned which resource
All of the other choices

27. **B** The language of the CPU is known as its *
1/1
None of the other choices
Instruction set
Register set
Control unit set

28. **D** Which of special register contains the condition code bits, the CPU priority, the mode bit and other control bits)? *
1/1
None of the other choices
Program Counter (PC)
Instruction Register (IR)
Program Status Word (PSW)

29.	**a**	Which of the following statements about Random Access Memory (RAM) is correct? * 1/1 Is volatile Stores all the files on the computer Can only be read sequentially Is typically faster than cache memory
30.	**A**	VMware Workstation is: * 1/1 Type 2 Hypervisor Host Operating system Type 1 Hypervisor Guest Operating system
31.	**C**	Which of the following is correct about advantages of layered system? * 1/1 None of the other choices Easier to debug from lower to upper layer Easier to extend and Easier to debug from lower to upper layer Easier to extend
32.	**A**	Which of the following instructions should be allowed only in kernel mode? * 1/1 All of the other choices Change the memory map Set the time-of-day clock Disable all interrupts
33.	**B**	Which of the following statements about the CMOS is incorrect? * 1/1 Is volatile To contain BIOS To hold the configuration parameters To hold the current time and date

34. **B** What part of the boot process determines whether the peripheral devices are working properly? *
1/1
ROM
POST
CMOS
BIOS

35. **D** The four main structural elements of a computer system are: *
1/1
Processor, Registers, I/O Modules, Main Memory
None of the other choices
Processor, Registers, Main Memory, System Bus
Processor, Main Memory, I/O Modules, System Bus

36. **D** As one proceeds down the memory hierarchy (from in-board memory to offline storage), which of the following conditions is correct? *
1/1
Decreasing capacity
None of the other choices
Increasing cost per bit
Increasing access time

37. **C** What is not a main function of an operating system? *
1/1
Provide the users with an extended (virtual) machine
Manage the I/O devices
Provide user interfaces
Support virtual memory

38. **C** As one proceeds down the memory hierarchy (from in-board memory to offline storage), the following conditions apply: *
1/1
Increasing capacity
Decreasing cost per bit
All of the other choices
Increasing access time

39. **C** Which of the following is not a operating mode of CPU * 1/1
Kernel mode
User mode
Management mode
None of the other choices

40. **C** A special register that contains the address of the next instruction to be fetched is called: * 0/1
Instruction Register (IR)
All of the other choices
Program Counter (PC)
Program Status Word (PSW)

41. **A** Which of the following operating systems is a example of monolithic system? * 1/1
MS-DOS
Mac OS
UNIX
Windows XP

42. **B** A CPU may have two or more complete processors, so that can carry out multiple threads in the same time is called: * 1/1
Pipeline
Multicore
None of the other choices
Superscalar

43. **A** Which of the following instructions should be allowed in user mode? * 1/1
Read the time-of-day clock
Set the time-of-day clock
Disable all interrupts
Change the memory map

44. **B** The main bus in the IBM PC computer are: *
0/1
PCI (Peripheral Component Interconnect)
ISA and PCI
None of the other choices
ISA (Industry Standard Architecture)

45. **A** The general role of an operating system is to: *
1/1
Provide a set of services to system users
Act as an interface between various computers
None of the other choices
Manage files for application programs

46. **D** The operating system structure in which the communication between requesting process and responding process is message passing? *
0/1
All of the other choices
Monolithic Systems
MS - DOS
Client - Server Model

47. **A** What is interrupt vector? *
1/1
Part of memory which contains the addresses of interrupt handlers
The addresses of interrupt handlers
A signal an I/O device sends to CPU
None of the other choices

48. **B** Which of the following actions generates an external interrupt? *
1/1
A page that does not exist in the main memory is accessed by the virtual storage management.
An input/output operation is completed.
Division by zero occurs.
A system call instruction is executed.

49.	**D**	An operating system * 1/1 Manages software resources in a computer system Deals with complex hardware resources and provides the user a virtual/extended machine that is much easier to deal with than the physical machine Manages hardware resources in a computer system All of the other choices
50.	**A**	A CPU may have separate fech, decode and execute units, so that can carry out three steps of the three instructions in the same time is called: * 1/1 Pipeline None of the other choices Superscalar Multicore
51.	**D**	The basic idea behind the microkernel design is: * 1/1 Only one module runs in kernel mode To achive high reliability by splitting operating system up into small, well-defined modules All other modules run as relatively powerless ordinary user processes All of the other choices
52.	**C**	What does the virtual machine monitor do? * 1/1 Does the multiprogramming Provides sevral virtual machines to the next layer up All of the other choices Runs on the bare hardware.
53.	**A**	Which is the fastest bus in the IBM PC computer? * 0/1 PCI (Peripheral Component Interconnect) IDE (Integrated Drive Electronic)

ISA (Industry Standard Architecture)
USB (Universal Serial BUS)

54. **D** Consider a computer system that has cache memory, main memory (RAM) and disk, and OS uses virtual memory. It takes 2 nsec to access a word from the cache, 10 nsec to access a word from RAM, and 10 msec to access a word from the disk. If the cache hit rate is 95% and main memory hit rate is 99%, what is average time to access a word? *
1/1
5,000.495 nsec
5,001.9 nsec
2.395 nsec
5,002.395 nsec

55. **D** Which of the following conditions that causes the processes to be terminated, when the processes executes a system call tell the OS to fininsh some other process? *
0/1
Normal exit (voluntary)
Error exit (voluntary)
Fatal error (involuntary)
Killed by another process (involuntary)

56. **A** Which of the following conditions that causes the processes to be terminated, when the processes have a program bug? *
0/1
Fatal error (involuntary)
Error exit (voluntary)
Normal exit (voluntary)
Killed by another process (involuntary)

57. **D** Operating system abstraction supports the ability to have _____ operation even when there is only one CPU available *
1/1
multiple
none of the other choices

parallel
pseudoparallelism

58. **D** What is the "sequential processes" concept? *
1/1
There are both many CPU and many PC
None of the other choices
All process is executed in concurrency
No concurrency inside a process; everything happens sequentiall

59. **C** How many percent of the CPU time is wasted, when a computer system has enough room to hold two program and these programs are idle waiting for I/O half the time? *
1/1
75%
50%
25%
None of the other choices

60. **A** ____ is the act of allowing only one process to have access to a dedicated resource *
1/1
Mutual exclusion
Circular wait
No preemption
Resource holdin

61. **B** Which of the following statements about user-level threads and kernel-level threads is correct? *
0/1
None of the other choices
Both user-level threads and kernel-level threads can write into each other's memory space
Kernel-level thread scheduling is faster than user-level thread scheduling
Both user-level threads and kernel-level threads use OS services via system calls

62. **A** Which of the following cannot be shared among different threads of a process? *
1/1
Stack
Process code
File handles
Process data

63. **A** A ____ is a portion of a process that can run independently *
1/1
thread
program
miniprocess
subprocess

64. **D** Five batch jobs A through E, arrive at a computer center at almost the same time. They have estimated running times of 8, 6, 2, 10, and 4 minutes. . Determine the average waiting time for FCFS scheduling. Ignore process switching overhead . *
0/1
18 minutes
18.8 minutes
17 minutes
12,8 minutes

65. **B** Which of the following is appropriate to release page table and pages? *
1/1
Process creation
Process termination time
Page fault time
Process execution

66. **A** Which of the events that causes the processes to be created, when the operation system creates a new process and runs the next job from the input queue? *
0/1
Initiation of a batch job

User request to create a new process
System initialization
Execution of a process creation system call

67. **B** How many percent of the CPU time is wasted, when a computer system has enough room to hold two program and these programs are idle waiting for I/O 10% of the time? *
1/1
99%
1%
None of the other choices
90%

68. **C** What happens when a thread calls Down (S) when it wants to enter its critical section, where S is a binary semaphore set to 1? *
1/1
The thread is blocked and added to a queue of waiting threads.
The semaphore is set to 2.
The thread is allowed to enter its critical section and S is decremented.
None of the other choices

69. **A** Which of the following statements is a hardware solution to the critical region problem? *
1/1
TSL
Semaphore
None of the other choices
Shared memory

70. **D** Which of the following is not true about process hierarchy? *
1/1
Window has no concept of a process hierarchy
In Unix, a process and all its children and further descendants together form a process group
A process creates child process. The child process can it-

self creates more processes, forming a process hierarchy
A process may have more than one parent

71. **A** Which conditions of mutual exclusion does the Strict Alternation (Software proposal) violate *
1/1
No process running outside its critical region may block another process
No assumptions made about speeds or numbers of CPUs
No process must wait forever to enter its critical region
No two processes simultaneously in critical region

72. **D** Five batch jobs A through E, arrive at a computer center at almost the same time. They have estimated running times of 8, 6, 2, 10, and 4 minutes. Their (externally determined) priorities are 3, 5, 2, 1, and 4, respectively, with 5 being the highest priority. Determine the average waiting time for Priority scheduling. Ignore process switching overhead. *
0/1
16,8 minutes
12,8 minutes
54 minutes
10,8 minutes

73. **C** hich statement about disadvantage of Disabling interrupts, (the hardware solution to the critical region problem) is correct? *
1/1
Permit process use command privileges: Danger!
If process is locked in Critical Section: System Halt
All of the other choices
Don't ensure Mutual Exclusion for the system with N CPUs

74. **B** How many percent is CPU utilization, when a computer system has enough room to hold two program and these programs are idle waiting for I/O 10% of the time? *
1/1
1%
99%

None of the other choices
90%

75. **A** What is the purpose of process synchronization? *
0/1
Avoid race condition
None of the other choices
Let different users run different processes independently
Avoid deadlock

76. **D** Which of the following operating system has the concept of a process hierarchy? *
0/1
Win32
CP/M
MS-DOS
Unix

77. **C** OS Windows use system call_____, while OS Unix use system call_____ to terminate processes normally *
1/1
terminate; ExitProcess
exit; ExitProcess
ExitProcess; exit
ExitProcess; terminate

78. **B** Which of the following process state transitions is correct, when the scheduler picks a process from the ready queue to run? *
1/1
Running -> ready
Ready -> running
Blocked (waiting) -> ready
Running -> Blocked (waiting)

79. **C** In a single processor system, mutual exclusion can be guaranteed by:
1/1
Overlapping processes
Interleaving processes

Disabling interrupts
All of the other choices

80. **D** In order to implement mutual exclusion on a critical resource for competing processes, only one program at a time should be allowed: *
1/1
None of the other choices
To exhibit cooperation
To perform message passing
In the critical region of the program

81. **B** Which of the following process state transitions is illegal? *
1/1
Blocked (waiting) -> ready
Ready -> Blocked (waiting)
Running -> Blocked (waiting)
Running -> ready

82. **A** Which of the following conditions that causes the processes to be terminated, when a processes have done their work? *
1/1
Normal exit (voluntary)
Error exit (voluntary)
Fatal error (involuntary)
Killed by another process (involuntary)

83. **B** Which of the following is not correct about user-level threads? *
1/1
User-level threads are more efficient than kernel threads, in the sense that they do not need kernel calls to switch among threads
With user-level threads, customized scheduling algorithms cannot be implemented
User-level threads cannot be preempted by clock interrupts unless the whole process' quantum has been used up

		If one user-level thread makes a blocking system call, the system will block the entire process (which contains that user-level thread)
84.	**B**	Which of the following about Atomic action is true? * 1/1 Possibly going to sleep All of the other choices Checking the value Changing the value
85.	**A**	A entry of the Process table is called: * 1/1 Process control block Process management block All of the other choices Process check block
86.	**B**	What is Software proposal in the solution of Mutual exclusion with Busy waiting * 1/1 Peterson's Solution All of the other choices Lock Variables Strict Alternation
87.	**B**	Which conditions of mutual exclusion does the Lock Variables (Software proposal) violate * 1/1 No assumptions made about speeds or numbers of CPUs No two processes simultaneously in critical region No process must wait forever to enter its critical region No process running outside its critical region may block another process
88.	**B**	A process where no concurrency inside process; everything happens sequentially is called: * 1/1 Random access process Sequential process

Sequential access process
None of the other choices

89. **C** When selecting the proper time quantum it should be long enough to allow ____ percent of the CPU cycles to run to completion *
1/1
40
100
80
20

90. **C** Five batch jobs A through E, arrive at a computer center at almost the same time. They have estimated running times of 8, 6, 2, 10, and 4 minutes. Determine the average waiting time for SJF (Shortest job first) scheduling. Ignore process switching overhead. *
0/1
18.8 minutes
6 minutes
8 minutes
14 minutes

91. **D** Five batch jobs A through E, arrive at a computer center at almost the same time. They have estimated running times of 8, 6, 2, 10, and 4 minutes. . Determine the average turnaround time for FCFS scheduling. Ignore process switching overhead. *
1/1
20 minutes
18 minutes
17 minutes
18.8 minutes

92. **A** How many percent is CPU utilization, when a computer system has enough room to hold two program and these programs are idle waiting for I/O half the time? *
1/1
75%
50%

25%
None of the other choices

93. **C**

A computer has 2GB RAM of which the operating system occupies 1GB.The processes are all 450 MB and have the same characteristics. How many percent of the CPU time is wasted, when these programs are idle waiting for I/O 20% of the time? *
0/1
90%
None of the other choices
4%
96%

94. **A**

How many ways are Thread implemented? *
1/1
3
2
1
4

95. **D**

What is not a field in the process table that relates memory management? *
0/1
Pointer to data segment info
Pointer to stack segment info
Pointer to text segment info
Pointer to program segment info

96. **D**

Which is the correct description of transitions between process states below? (see picture) *
1/1
Captionless Image
1: Process blocks for input; 2: Input becomes available; 3: Scheduler picks another process; 4: Scheduler picks this process
1: Process blocks for input; 2: Scheduler picks this process; 3: Scheduler picks another process; 4: Input becomes available
1: Process blocks for input; 2: Input becomes available; 3:

		Scheduler picks this process; 4: Scheduler picks another process 1: Process blocks for input; 2: Scheduler picks another process; 3: Scheduler picks this process; 4: Input becomes available
97.	**C**	A computer has 2GB RAM of which the operating system occupies 1GB.The processes are all 450 MB and have the same characteristics. How many percent is CPU utilization when these programs are idle waiting for I/O 20% of the time? * 1/1 90% None of the other choices 96% 4%
98.	**A**	Which of the events that causes the processes to be created, when a running process creates one or more new process to help it to do its job? * 1/1 Execution of a process creation system call Initiation of a batch job User request to create a new process System initialization
99.	**C**	The following requirement must be met by any facility or capability that is to provide support for mutual exclusion: * 1/1 Only one process at a time can be allowed into a critical section No assumption can be made about relative process speeds All of the other choices A process remains in its critical region for a finite time only
100.	**B**	Which is a advantage of implementing threads in the kernel? * 1/1

None of the other choices
Is good for multiprocessor architecture and if one thread is blocked does not cause the other thread to be blocked
If one thread is blocked does not cause the other thread to be blocked
Is good for multiprocessor architecture

101. **C**

Critical Region (Section) concept used in interprocess communication is: *
1/1
A part of shared memory
None of the other choices
A part of the program where the shared memory is accessed
A part of shared data

102. **B**

OS Win32 use system call_____, while OS Unix use system call_____ to create a new process *
1/1
fork, CreateProcess
CreateProcess; fork
copy, CreateProcess
CreateProcess; copy

103. **B**

Which statement about disabling interrupts to resolve race conditions is wrong? *
1/1
A. Disabling/enabling interrupts may negatively affect the I/O system
B. User-mode programs are the best place to invoke disableInterrupt()
C. In theory, a program can disable interrupts when it enters a critical section, and re-enable interrupts when finished with a critical section, to eliminate race conditions
D. Programs with infinite loops in their critical sections are a significant problem with the interrupt-based approach

104. **A**

Which of the events that causes the processes to be created, when an operation system is booted? *
1/1

System initialization
Execution of a process creation system call
User request to create a new process
Initiation of a batch job

105. **D** Which of the following process state transitions is legal? *
1/1
Blocked (waiting) -> runnig
Ready -> Blocked (waiting)
None of the other choices
Running -> ready

106. **D** Which of the following process state transitions is correct, when the external event for which a process was waiting happens? *
1/1
Running -> Blocked (waiting)
Running -> ready
Ready -> running
Blocked (waiting) -> ready

107. **D** Which of the following process state transitions is correct, when the operating system discovers that process can not continue right now because of is not enough resource? *
1/1
Running -> ready
Blocked (waiting) -> ready
Ready -> running
Running -> Blocked (waiting)

108. **C** Which of the following statements about semaphores is true? *
1/1
If several processes attempt a P(S) operation simultaneously, only one process should be allowed to proceed.
A semaphore implementation should guarantee that processes do not suffer indefinite postponement.
All of the other choices

P and V (Down and Up) operations should be indivisible operations

109. **D** Which of the following conditions must be held to provide good solution for mutual exclusion? *
1/1
No process running outside its critical region may block another process
No process must wait forever to enter its critical region
No two processes simultaneously in critical region
All of the other choices
No assumptions made about speeds or numbers of CPUs

110. **B** In terms of disk storage efficiency, the method of "Backing up pages dynamically" in comparison with the method of "Paging to a static swap area" is *
0/1
Nearly equal
Better
Equal
Worse

111. **C** A well-known operating system for Handheld Computer is: *
1/1
e-COS
TinyOS
Symbian OS and Palm OS
MS-DOS

112. **D** Critical Region (Section) concept used in interprocess communication is: *
1/1
None of the other choices
A part of shared data
A part of shared memory
A part of the program where the shared memory is accessed

113. **D**

When there is an excessive amount of page swapping between main memory and secondary storage, the operation becomes inefficient, which is called ____. *
1/1
excessive demand paging
over swapping
hot swapping
thrashing

114. **D**

Suppose a virtual address space of 2^24 words and the page size is 2^12 words. If the virtual address is 123456 in Hexadecimal, what would be the page number in Hexadecimal? *
1/1
12345
1234
123456
123

115. **A**

A system with 32 bit virtual address. If the page size is 4 KB and each table entry occupies 4 bytes, what is the size of the page table? *
1/1
4 MB
8 MB
2 MB
1 MB

116. **C**

Which of these statements about the Inverted Page Table are true? *
1/1
An entry contains the pair (process, offset) mapped into the corresponding page frame
An entry contains the pair (segment, virtual page) mapped into the corresponding page frame
An entry contains the pair (process, virtual page) mapped into the corresponding page frame
An entry contains the pair (segment, offset) mapped into the corresponding page frame

117. **D** In terms of speed the best method of Dynamic Storage-Allocation is: *
1/1
Worst fit
Best fit
Next fit
First fit

118. **C** A process where no concurrency inside process; everything happens sequentially is called : *
1/1
None of the other choices
Sequential access process
Sequential process
Random access process

119. **C** What is not a field in the process table that relates process management? *
1/1
CPU time used
PC, PSW, SP
User ID, Group ID
Process ID

120. **C** Which of the following process state transitions is correct, when the external event for which a process was waiting happens? *
1/1
Ready -> running
Running -> Blocked (waiting)
Blocked (waiting) -> ready
Running -> ready

121. **B** Which is the maximum partition size, if the FAT type is FAT-32 and the block size is 4 KB? *
1/1
256 MB
1 TB
512 MB
128 MB

122. **B** Where should be put the page replacement algorithm In Mach model of Page fault handling with an external pager? *
0/1
In the page fault handler that is part of the kernel
In the external pager running in user space
All of the other choices
In the low-level MMU handler

123. **C** Consider a computer system that has cache memory, main memory (RAM) and disk, and OS uses virtual memory. It takes 1 nsec to access a byte from the cache, 10 nsec to access a byte from RAM, and 5 msec to access a block of 1000 bytes from the disk. If a book has 1000 pages, each with 25 lines of 80 characters each, How long it will take to electronically scan the text for the case of the master copy being in each of the level as one proceeds down the memory hierarchy (from inboard memory to offline storage)? *
1/1
4 msec, 40 msec, 20 sec
1 msec, 10 msec, 5 sec
2 msec, 20 msec, 10 sec
1 msec, 10 msec, 10 sec

124. **D** What is correct about trap instructions and interrupts? *
1/1
An interrupt is caused by an external event
Trap instruction switches the execution mode of a CPU from the user mode to the kernel mode.
A trap instruction is caused by a user program to invoke functions in the OS kernel
All of the other choices

125. **C** Which of the following operating system has the concept of a process hierarchy? *
0/1
Win32
CP/M

Unix
MS-DOS

126. **B** As one proceeds down the memory hierarchy (from in-board memory to offline storage), which of the following conditions is correct? *
1/1
Decreasing access time
Increasing capacity
Increasing cost per bit
None of the other choices

127. **A** Assume that the Page Table below is in effect: Page Number: 0 1 2 3; Page Frame Number: 8 10 5 11. The number of lines per page is 400. The actual memory location for line 1634 is ____. *
1/1
None of the other choices
1634
3
4434

128. **A** How many percent of the CPU time is wasted, when a computer system has enough room to hold two program and these programs are idle waiting for I/O half the time? *
1/1
25%
75%
None of the other choices
50%

129. **D** Working set model is used for: *
1/1
Determining whether page replacement is needed
Finding the average number of frames a job will need to run smoothly
All of the other choices
Finding the minimum number of frames necessary for a job so that jobs can be run without "thrashing"

130. **C** An arrival message causes the system to create a new thread to handle this message. This new thread is call_____ *
1/1
Activator
Upcall
Pop-up
Distributed

131. **A** What is Higher-level proposal in the solution of Mutual exclusion and Synchronization? *
1/1
Monitors
Message passing
Disable Interrupts
Peterson's Solution

132. **B** What is the characteristic of the second generation of operating system? *
1/1
ICs and multiprogramming
Transistors, batch systems
Vacuum tubes, plug boards
Personal computers, single user, multitasking

133. **C** What is the main characteristic of real-time operating system? *
1/1
Multiple CPU
Time-sharing
Time is key parameter
Many I/O devices

134. **C** LRU replaces the page that has spent the *
1/1
longest time in memory
shortest time in memory
longest time in memory without being referenced
shortest time in memory without being referenced

135. **B** Which of the following is not correct about user-level threads? *
1/1
A. User-level threads are more efficient than kernel threads, in the sense that they do not need kernel calls to switch among threads
B. With user-level threads, customized scheduling algorithms cannot be implemented
C. User-level threads cannot be preempted by clock interrupts unless the whole process' quantum has been used up
D. If one user-level thread makes a blocking system call, the system will block the entire process (which contains that user-level thread)

136. **A** A computer has four page frames. The time of loading, time of last access, and the R and M bits for each page are as shown below (the times are in clock ticks). Which page will NRU replace?
1/1
Captionless Image
0
1
2
3

137. **B** A computer with a 32-bit address uses a two-level page table. Virtual addresses are split into a 9-bit top-level page table field, an 11-bit second-level page table field, and an offset. How many pages are there in the address space? *
1/1
2^23 pages
2^20 pages
2^22 pages
2^21 pages

138. **D** Which is not true about "Backing up pages dynamically"? *

1/1
Requires a disk map in memory
Pages do not have fixed swap area on the disk
When a page is swapped out, an empty disk page is chosen on the fly and disk map is updated accordingly
Needs less main memory than the method "Paging to a static swap area"

139. **A** What is not the technique of implementation for Virtual Memory? *
1/1
Partition
Segmentation
Paging
All of the other choices

140. **B** As one proceeds down the memory hierarchy (from in-board memory to offline storage), which of the following conditions is correct? *
1/1
None of the other choices
Decreasing cost per bit
Decreasing access time
Decreasing capacity

141. **D** Which of the following actions generates an external interrupt? *
1/1
A page that does not exist in the main memory is accessed by the virtual storage management.
A system call instruction is executed.
Division by zero occurs.
An input/output operation is completed.

142. **D** Which is not true about the method of backing store: "Paging to a static swap area"? *
1/1
The swap area on the disk is as large as the process virtual address space
Calculating the address in swap area requires knowing

	only where the process' paging area begins A page that is in memory always have shadow copy on disk Requires a disk map in memory
143. **B**	The page size that is too small will generate ____ * 1/1 More difficult to calculate actual position Very long Page tables Excessive internal fragmentation Excessive external fragmentation
144. **D**	Assume jobs A-D arrive in quick succession in the READY queue. Using round robin scheduling (quantum=4), the turnaround time for job B is ____. Arrival time: 0 1 2 3; Job: A B C D; CPU cycle: 8 4 9 5 * 1/1 24 20 22 7
145. **D**	Which of the following is true about Atomic action on semaphores? * 1/1 Changing the value Possibly going to sleep Checking the value All of the other choices
146. **D**	Which of the following statements is a hardware solution to the critical region problem? * 1/1 None of the other choices Semaphore Shared memory TSL
147. **B**	Five batch jobs A through E, arrive at a computer center at almost the same time. They have estimated running times

of 8, 6, 2, 10, and 4 minutes. Their (externally determined) priorities are 3, 5, 2, 1, and 4, respectively, with 5 being the highest priority. Determine the average waiting time for Priority scheduling. Ignore process switching overhead. * 1/1
12,8 minutes
10,8 minutes
54 minutes
16,8 minutes

148. **D** If there are 128 pages and the page size is 32 K words, what is the length of logical address? * 1/1
24 bits
26 bits
30 bits
22 bits

149. **B** Which of the following information bits in the entry of page table is used to indicate locked page? * 1/1
Modified bit
Caching disabled
Present/absent bit
Referenced bit

150. **B** The modified/dirty bit is used for the purpose of: * 1/1
Dynamic allocation of memory used by one process to another
Reduce the average time required to service page faults
None of the other choices
Implementing FIFO page replacement algorithm

151. **C** What is not a main function of an operating system? * 1/1
Manage the I/O devices
Provide the users with an extended (virtual) machine
Provide user interfaces
Support virtual memory

152. **B** Which of following statements about the memory hierarchy is false? *
1/1
Gigabytes of slow cheap disk storage
None of the other choices
Some medium-speed medium price main memory
Small amount of fast expensive memory-cache

153. **A** A simple structuring model for monolithic system includes: *
1/1
All of the other choices
A main program that invokes the requested service procedure
A set of service procedures that carry out the system calls
A set of utility procedures that help the service procedures

154. **C** Which kind of tables is used in the segmentation? *
1/1
Local Descriptor Table (LDT)
None of the other choices
Both Global Descriptor Table (GDT) and Local Descriptor Table (LDT)
Global Descriptor Table (GDT)

155. **D** Consider a swapping system in which the memory consists of the following hole sizes: 10K, 4K, 20K, 15K, 9K. Assume best fit algorithm is used. Which holes are taken for successive segment requests of 8K, 12K, 10K? *
1/1
10K, 15K, 20K
10K, 20K, 15K
20K, 15K, 10K
9K, 15K, 10K

156. **B** In some thread systems, a thread want be blocked until an other thread has exited. It can establish this goal by calling_____ *
1/1

thread_yield
thread_wait
thread_create
thread_exit

157. **A** Consider a computer system that has cache memory, main memory (RAM) and disk, and OS uses virtual memory. It takes 1 nsec to access a byte from the cache, 10 nsec to access a byte from RAM, and 5 msec to access a block of 1000 bytes from the disk. If a book has 1000 pages, each with 50 lines of 80 characters each, How long it will take to electronically scan the text for the case of the master copy being in each of the level as one proceeds down the memory hierarchy (from inboard memory to offline storage)? *
1/1
4 msec, 40 msec, 20 sec
1 msec, 10 msec, 10 sec
2 msec, 20 msec, 10 sec
1 msec, 10 msec, 5 sec

158. **A** Which of the following is a preemptive scheduling algorithm *
1/1
Round Robin
None of the other choices
Shortest Job First
FCFS

159. **B** Which of the following instructions should be allowed in user mode? *
1/1
Disable all interrupts
Read the time-of-day clock
Change the memory map
Set the time-of-day clock

160. **C** Examples of general purpose stored program computers include the following except *
1/1

Network servers
Workstations
MP3 player
Personal computers

161. **D** When a virtual memory system manages memory in fixed length units, which of the following terms correctly represents its unit? *
1/1
Segment
Block
Frame
Page

162. **C** At which level in Protection Rings on the Pentium the System calls reside *
1/1
0
2
1
3

163. **A** The Mach model of Page fault handling with an external pager includes *
1/1
All of the other choices
An external pager running in user space
A low-level MMU handler
A page fault handler that is part of the kernel

164. **A** Which of the following information bits in the entry of page table is used to indicate that page is changed since it was loaded in memory? *
1/1
Modified bit
Status bit
Present/absent bit
Referenced bit

165. **C**

Which strategy is a simplest design for speeding up Paging? *
1/1
Page table is loaded into TLB
Page table is loaded into main memory
Page table is loaded into registers
Page table is loaded into disk

166. **C**

How many level of scheduling are used in computer *
1/1
2
4
3
1

167. **A**

If there are 256 pages and the page size is 4K words, what is the length of logical address? *
1/1
20 bits
14 bits
17 bits
15 bits

168. **b**

Which of the following is not correct about hard links? *
0/1
Hard links require to increase the link count in the i-node for each linking
Hard links can point to files in the network
Hard links do not require extra disk space
Hard links can only point to files on the same machines

169. **c**

____ is a specialized WRITE command for existing data files that allows for adding records to end of the file. *
1/1
UPDATE
REWRITE
APPEND
MODIFY

170. **c**

	Which of the following is correct about symbolic links? * 1/1 Symbolic links need not space to store the name and the file pointed to Symbolic links can only point to files on the same machines Symbolic links can point to files in the network None of the other choices
171. **c**	The primary disadvantage of contiguous storage is that _____. * 1/1 It is difficult to find information in files It is hard to implement and manage File can't be expanded unless there is empty space available immediately following it It is an inefficient use of space
172. **a**	Which solution is used to solve the "missing block" problem in file system consistency? * 1/1 The file system checker adds the missing blocks to the free list The file system checker rebuilds the free list The file system checker allocate the free block, then copy the duplicate block in used to there None of the other choices
173. **d**	A _____ is a group of related records that contains information to be used by specific application programs to generate reports. * 1/1 Record group Field Directory File
174. **c**	A directory in UNIX/Linux consists of the following * 1/1 None of the other choices

	File name, file size, location of the file on disk, date created, owner ID Inode number and file name File name, file size, location of the file on disk
175. **c**	Which of the following is not a well-known technique for organizing the physical storage blocks for a file? * 1/1 Contiguous block allocation Linked list block allocation Sparse block allocation Indexed block allocation
176. **a**	____ allocation allows files to use any storage space available on the disk. * 1/1 Noncontiguous storage Add-on storage Contiguous storage Fragmented storage
177. **d**	What is incorrect about contiguous allocation of files? * 1/1 It leads to excellent read performance It is simple to implement It is widely used on CD-ROMs It does not cause disk fragmentation
178. **c**	Which of the following is not file structure? * 1/1 Byte sequence Record sequence Ring Tree
179. **d**	____ is a specialized WRITE command for existing data files that allows for appending records or for rewriting selected records in their original place in the file. * 1/1 REWRITE

UPDATE
APPEND
MODIFY

180. **a** How many is maximum number of partition that most disk can be divided up into? *
1/1
4
3
5
2

181. **a** The disk block in a partition that includes a magic number, the number of blocks in the file system and other key administrative information is called: *
1/1
Superblock
MBR
Free block
Boot block

182. **d** Which of the following is not special file? *
1/1
Block special file
Character special file
None of the other choices
Stream special file

183. **a** Which of the following is true about the block size in disk space management *
1/1
the larger the block size is the worse the disk space utilization is
the larger the block size is the lower the data rate is
the larger the block size is lesser the disk space is
None of the other choices

184. **b** The absolute pathname of a file in Linux is with respect to the *
1/1

	Login directory Root directory on the system Home directory All of the other choices
185. **d**	Which is the maximum partition size, if the FAT type is FAT-16 and the block size is 2 KB? * 0/1 256 MB 512 MB 8 MB 128 MB
186. **c**	Which of a system callI is to allow the file to appear in more than one directory? * 1/1 OPEN CREATE LINK SEEK
187. **d**	____ are special files with listings of filenames and their attributes. * 1/1 Databases Programs Data files Directories
188. **b**	How large is the block size, if the maximum partition size is 128 MB and the FAT type is FAT-16? * 0/1 8 KB 2 KB 1 KB 4 KB
189. **c**	The disk blocks in a partition that contains the top of the file system tree is called: * 1/1

	Free space management blocks Superblock Root directory Boot block
190. **b**	The special files are: * 1/1 none of the other choices character special file and block special file character special file block special file
191. **d**	Which of a system calll is to allow the system free up internal table space? * 1/1 OPEN DELETE SEEK CLOSE
192. **b**	Which method is used to implement files to keep each file as a linked list of disk blocks? * 1/1 File Allocation Table Linked List Allocation i-node Contiguous Allocation
193. **a**	Which of the following is not correct about hard links and symbolic links? * 1/1 Hard links can point to files on other machines Hard links do not require extra disk space Symbolic links need space to store the name and the file pointed to Symbolic links can point to files in the network
194. **b**	Which are allocation methods of disk blocks for files: * 1/1 Contiguous allocation

All of the other choices
Indexed allocation
Linked allocation

195. **c** How large is the block size, if the maximum partition size is 8 MB and the FAT type is FAT-12? *
0/1
1 KB
8 KB
2 KB
4 KB

196. **b** Increasing file system performance is implemented by _____ *
1/1
Block Read Ahead
All of the other choices
Defragmenting Disks
Buffer cache

197. **c** Which of a system calll is to allow the system fetch the attributes and list of disk addresses into main memory for rapid access on later call? *
1/1
RENAME
CLOSE
OPEN
SEEK

198. **b** The File Manager writes the volume name and other descriptive information on an easy-to-access place on each unit: ____ of the magnetic disk *
1/1
the innermost part
the outermost part
stored at the beginning of the volume
immediately following the master file directory

199. **a** Strategy used for dumping a disk to tapes is: *
1/1

	Physical dump and Logical dump Physical dump None of the other choices Logical dump
200. **d**	Which of the following information contain in the entry of the partition tables ? * 1/1 Starting and ending address of each partition None of the other choices Marking a partittion as active Starting and ending address of each partition and Marking a partittion as active
201. **d**	Disk can be divided up into one or more partitions the first block of every partition is called: * 1/1 MBR Free block Super block Boot block
202. **c**	Which of the following is specified to indicate the directory where the file is located? * 1/1 Sub-directory Extension Path name Root directory
203. **c**	File is generally defined to be: * 1/1 A collection of related fields A basic element of data A collection of similar records None of the other choices
204. **c**	The Linking technique that allows the file to appear in more than one directory are: * 1/1

Hard link
Symbolic link
Hard link and Symbolic link
Soft link

205. **b** Which of a system calll is to allow the system announce that the file is coming and set some of the attributes? *
1/1
RENAME
CREATE
CLOSE
OPEN

206. **A** Which is the maximum partition size, if the FAT type is FAT-32 and the block size is 4 KB? *
0/1
1 TB
1 GB
16GB
16 TB

207. **c** Which of a system calll is to allow the system to specify from where to take the data in file? *
1/1
OPEN
CREATE
SEEK
LINK

208. **a** Which is the maximum partition size, if FAT type is FAT-12 and the block size is 2 KB? *
1/1
8 MB
128 MB
256 MB
512 MB

209. **a** Operating system MS-DOS is implemented in which of the following allocation methods? *
1/1

	Linked allocation using FAT Linked allocation Contiguous allocation Indexed allocation
210. **d**	Which of the following is true about the data rate for disk management? * 1/1 the larger the block size is lesser the disk space is the larger the block size is the lower the data rate is None of the other choices the larger the block size is the faster the data rate is
211. **b**	Which ways are used to keep track of free block in disk space management? * 1/1 A bitmap method A linked list method and bitmap method None of the other choices A linked list method
212. **d**	A table in main memory storing linked list allocation of disk blocks is called: * 1/1 Linked list table File list table Disk allocation table File allocation table
213. **a**	Many computer users and some operating systems call subdirectories ____. * 1/1 Folders Volumes Files Databases
214. **d**	Which of a system call is to allow the system free up disk space? * 1/1

OPEN
CLOSE
SEEK
DELETE

215. **b** File Structure can be: *
1/1
Record sequence
All of the other choices
Tree
Byte sequence

216. **c** The Joliet Extensions provide _____ *
1/1
Long file name is supported Unicode character
Directory nesting deeper than 8 levels
All of the other choices
Directory names with extensions

217. **a** Which part of a disk is used to boot the computer? *
1/1
MBR
Root block
Super block
Free block

218. **d** The i-nodes are used in which of the following allocation methods? *
0/1
Linked allocation using FAT
Contiguous allocation
Linked allocation
Indexed allocation

219. **a** Which mechanism is implemented by writing to the log file in file system management and optimization? *
1/1
Journaling File Systems
None of the other choices

Virtual File Systems
Log-Structured File Systems

220. **b**

As long as users refer to files in the ____ directory, they can access their files without entering the complete name from the highest level to the lowest. *
1/1
Default
Working
Root
Home

221. **b**

The File Manager writes the volume name and other descriptive information on an easy-to-access place on each unit: ____ of the CD or DVD *
1/1
stored at the beginning of the volume
the innermost part
the outermost part
immediately following the master file directory

222. **/**

A UNIX or Linux system might identify a file as: /usr/imf-st/flynn/inventory.doc. What represents the root directory is ____. *
1/1
/
flynn
usr
imfst

223. **a**

Which of the following actions generates an external interrupt? *
1/1
An input/output operation is completed.
A page that does not exist in the main memory is accessed by the virtual storage management.
A system call instruction is executed.
Division by zero occurs.

224. **b**

	A operation concerning Stable Storage is: * 1/1 Crash recovery All of the other choices Stable writes Stable reads
225. **d**	When an external device becomes ready to be serviced by the processor, the device sends this signal to the processor. This signal is called: * 1/1 Handler signal Halt signal None of the other choices Interrupt signal
226. **a**	What's asynchronous transfer in principles of I/O software? * 1/1 The CPU starts the transfer and goes off to do something else until the interrupt arrives The user program starts system call to transfer and automatically suspended until the data are available in the buffer None of the other choices The user process makes system call and goes to sleep until other process it wakes up
227. **d**	A computer uses a programmable clock in square-wave mode. If 500 MHz crystal is used, what should be the value of the holding register to achieve a clock resolution of 1 msec (clock tick)? * 1/1 5,000,000 50,000,000 50,000 500,000
228. **b**	

	Which class of I/O devices that Scanner belong to? * 1/1 Stream devices Character devices None of the other choices Block devices
229. **b**	An example of a I/O character devices is * 1/1 All of the other choices Modem Disks CD ROM
230. **a**	Which of the following statements about device drivers is incorrect? * 1/1 In the I/O software architecture, the device drivers layer lie right above the hardward, and below the interrupt handlers layer None of the other choices Most operating systems expect device drivers to be part of the kernel A device driver is a set of device-specific code for controlling the I/O device attached to a computer
231. **a**	Which class of I/O devices that keyboard belong to? * 1/1 Character devices Stream devices Block devices None of the other choices
232. **d**	Which is the right order between the 4 I/O software layers? * 1/1 User-level I/O software, Device drivers, Interrupt handlers, Device-independent OS software Device-independent OS software, user-level I/O software,

	Device drivers, Interrupt handlers User-level I/O software, Interrupt handlers, Device drivers, Device-independent OS software User-level I/O software, Device-independent OS software, Device drivers, Interrupt handlers
233. **d**	Which of the following statements is not correct about "device independence"? * 1/1 Files and devices are accessed in the same way, independent of their physical nature Device independent interfaces should be given to programmers A system has to maintain only one set of system calls for both writing on a file and writing on the console Device independence requires all programmers to deal with different devices directly
234. **d**	Programmed I/O should be acceptable for which of the following systems? * 1/1 Embedded systems Interactive systems Multiprogramming systems None of the other choices
235. **b**	Which of the following I/O software is done by Device drivers? * 1/1 None of the other choices Writing commands to the device registers Converting binary integers to ASCII for printing Checking to see if the user is permitted to use the device
236. **c**	Imagine that a certain printer can print 400 characters per second and that the time to write a character to the printer's output register is so short it can be ignored. If to run this printer using interrupt-driven I/O and each character printed requires an interrupt that takes 50 µsec all-in to service. How many percent of the CPU does the

interrupt overhead cost? *
1/1
98% of the CPU
4% of the CPU
2% of the CPU
96% of the CPU

237. **a** Which of the following I/O software is done by Device-independent OS software *
1/1
Checking to see if the user is permitted to use the device
Computing the track, sector, and head for a disk read
Writing commands to the device registers
Converting binary integers to ASCII for printing

238. **b** Which of the following statements about the task of device controller of I/O devices is correct ? *
1/1
Make available to main memory
All of the other choices
Perform error correction as necessary
Convert serial bit stream to block of bytes

239. **c** The term _____ characterizes a system configuration that includes an I/O module that is a separate processor with a specialized instruction set. *
1/1
Programmed I/O
None of the other choices
DMA
I/O device

240. **a** Imagine that a certain printer can print 400 characters per second and that the time to write a character to the printer's output register is so short it can be ignored. If to run this printer using interrupt-driven I/O and each character printed requires an interrupt that takes 50 µsec all-in to service. How many percent of the CPU is available to do other work? *
1/1

98% of the CPU
96% of the CPU
2% of the CPU
4% of the CPU

241. **c** In separating I/O and memory space system, the set of I/O ports form the "I/O port space". This mechanism allows: *
1/1
Both progams in user space and kernel can access to I/O devices
None of the other choices
Only programs in kernel can access to I/O devices
Programs in user space can easily access to I/O devices

242. **c** Which approach is used in order to CPU communicate with the control registers of the I/O device? *
1/1
Memory-mapped I/O
Separating I/O and memory space
All of the other choices
Hybrid: separating I/O and memory space and memo-ry-mapped I/O

243. **b** Which of the following statements is not correct about the device controller of I/O devices? *
1/1
Is electronic component of device
Is software component of device
Can handle two, four, or even eight identical devices
Is also called adapter

244. **c** Imagine that a certain modem can read 7,000 characters per second and that the time to read a character to the modem register is so short it can be ignored. If to run this modem using interrupt-driven I/O and each character read requires an interrupt that takes 10 µsec all-in to service. How many percent of the CPU does the interrupt overhead cost? *
1/1

93% of the CPU
4% of the CPU
7% of the CPU
96% of the CPU

245. **a** Rearrange the layers in I/O software starting at the bottom: 1. User-level I/O software; 2. Device drivers3; Interrupt handlers; 4. Hardware5; Device-independent OS software. *
1/1
43251
12345
15234
54321

246. **a** Which of the following statements is incorrect? *
1/1
A hard drive is an example of a I/O character device
In the interrupt-driven I/O technique, the processor issues an I/O request, continues with other work and eventually receives notification that the request was fulfilled
The term data rate refers to the speed with which data moves to and from the individual I/O device
None of the other choices

247. **c** Which of the following statement is not true about separating I/O and memory space? *
1/1
Programs must use 2 instructions to test whether the device is ready
There is special protection mechanism to keep user processes from performing I/O
Caching a device control register would be disastrous
Device drivers must be written using assembly language

248. **c** In order that CPU communicates with the comtrol registers in the devices, the control register is assigned: *
1/1
Index
I/O address

	I/O port number None of the other choices
249. **b**	An example of a I/O block devices is * 1/1 All of the other choices CD ROM Modem Printer
250. **d**	Which class of I/O devices that Clock belong to? * 1/1 Stream devices Block devices Character devices None of the other choices
251. **b**	Which of the following statements about interrupts and trap instructions is incorrect? * 1/1 A trap instruction is a software-generated interrupt None of the other choices An interrupt is a hardware-generated change of control flow within the system An interrupt handler deals with the cause of the interrupt
252. **d**	Which of the following is not correct about the main classes of I/O devices? * 1/1 Block devices and Character devices Block devices Character devices Stream devices
253. **d**	DMA operations require the following information from the processor * 1/1 Number of words to be read or written Address of I/O device

Starting memory location to read from and write to
All of the other choices

254. **a** In general, which is the best technique for I/O Data transfer? *
1/1
Direct Memory Access
Programmed I/O
Interrupt-Driven I/O
None of the other choices

255. **b** Assuming that it takes 10 nsec to copy a byte, how much time, does it take to completely rewrite the screen of a 200 character x 20 line text mode memory-mapped screen? *
0/1
10 micro-sec
40 micro-sec
20 micro-sec
30 micro-sec

256. **a** The main classes of I/O devices are? *
1/1
Block devices and Character devices
Character devices
Block devices
Stream devices

257. **b** Which mechanism is described as "the device controller sneaks in and steals an occasional bus cycle from the CPU once in a while, delaying it slightly"? *
1/1
All of the others
Cycle stealing
Cycle sneaking
Interrupt stealing

258. **c** In the hierarchical structure for managing I/O, which layer is closest to the hardware? *
1/1
Device-independent OS software

None of the other choices
Interrupt handlers
Device drivers

259. **a** Which of the following statements is incorrect about I/O using DMA? *
1/1
DMA is software solution to speed up data transfer between I/O device and memory
DMA helps reduce the number of interrupts
DMA helps free up the CPU during the I/O to do other work
None of the other choices

260. **c** Which of the following statements about device drivers is correct? *
1/1
None of the other choices
Device drivers lie on top of I/O software layer architecture
Device drivers layer lies right above the interrupt handlers layer and below the device-independent OS software layer
Device drivers lie on bottom of I/O software layer architecture

261. **d** Device Driver is normally written by: *
1/1
All of the other choices
Computer's Manufacturer
OS's Manufacturer
Device's Manufacturer

262. **d** How much cylinder skew is needed for a 3600- RPM (rotate per minute) disk with the track-to-track seek time of 1 msec? The disk has 200 sectors of 512 bytes on each track. *
1/1
24 sectors
18 sectors

36 sectors
12 sectors

263. **d** Which of the following statements is not correct about DMA ? *
1/1
DMA helps reduce the number of interrupts (in comparison with interrupt-driven I/O)
DMA controller has access to the system bus independent of the CPU
The operating system can only use DMA if the hardware has a DMA controller
DMA controller is usually faster than CPU

264. **c** What is the table where its entry contains the memory address of Interrupt service routine *
1/1
Address table
Address lines table
Interrupt vector table
Interrupt table

265. **a** Each device attached to your computer comes with a special program called a _____ that facilitates the communication between the device and the OS. *
1/1
device driver
communication utility
device configurator
translator

266. **d** Which of the following statements about interrupts and system calls is incorrect? *
1/1
Interrupts are caused by external events
Interrupts are asynchronous
System calls are caused by internal (synchronous) events
None of the other choices

267. **b**

	Imagine that a certain modem can read 7,000 characters per second and that the time to read a character to the modem register is so short it can be ignored. If to run this modem using interrupt-driven I/O and each character read requires an interrupt that takes 10 µsec all-in to service. How many percent of the CPU is available to do other work? * 1/1 7% of the CPU 93% of the CPU 96% of the CPU 4% of the CPU
268. **a**	Assuming that it takes 10 nsec to copy a byte, how much time, does it take to completely rewrite the screen of an 80 character x 25 line text mode memory-mapped screen? * 0/1 20 micro-sec 30 micro-sec 10 micro-sec 40 micro-sec
269. **d**	Which of the following statement is correct about a disad-vantage of memory-mapped I/O? * 1/1 Programs can use 1 instruction to test whether the device is ready No special protection mechanism needed to keep user processes from performing I/O Since the control registers of devices are mapped into the memory space, device drivers can be written in C Caching a device control register would be disastrous
270. **b**	How many categories can be the I/O devices roughly divided into? * 1/1 1 2

3
4

271. **a** Which class of I/O devices that disks and tapes belong to? *
1/1
Block devices
Stream devices
Character devices
None of the other choices

272. **d** Which statement about DMA is incorrect? *
1/1
The CPU can start a DMA block transfer, and in the mean time do other work
The controller does not need to wait for the CPU to transfer data to/from memory
The CPU needs not to be concerned with the time it takes to transfer data
It is always true that DMA is less expensive than CPU-mediate data transfers

273. **b** The I/O technique where the processor busy waits for an I/O operation to complete is called: *
1/1
Direct Memory Access (DMA)
Programmed I/O
Interrupt-driven I/O
None of the other choices

274. **a** In the memory-mapped I/O system, in order that CPU communicates with the comtrol registers in the devices, the control register is assigned: *
1/1
Unique memory address
I/O address
Index
None of the other choices

275. **d**

An example of the key differences that can exist across (and even in) types of I/O devices is: *
1/1
Error conditions
Data representation
Data rate
All of the other choices

276. **a** An interrupt that leaves the machine in well-defined state is called a(n) _____ *
1/1
Precise interrupt
Disappointed interrupt
Imprecise interrupt
Required interrupt

277. **c** Which of the following I/O software is done by User-level software *
1/1
Computing the track, sector, and head for a disk read
Writing commands to the device registers
Converting binary integers to ASCII for printing
Checking to see if the user is permitted to use the device

278. **a** What is the correct approach with requesting the dedicated devices to solve deadlock using Ostrich algorithm?
1/1
The device driver decides blocking and returning an error code
The device driver kills those requesting processes
The device driver stops the current jobs and releases the devices
All of the other choices

279. **a** A simplest way to break a deadlock is to *
1/1
kill one of the processes
rollback
lock one of the processes
preempt a resource

280. **d** Which deadlock condition does Request all resources initially attack? *
1/1
No preemption
Circular-wait condition
Mutual exclusion
Hold and wait

281. **d** The permanent blocking of a set of processes that compete for system resources is called *
1/1
None of the other choices
Starvation
Prioritization
Deadlock

282. **c** If in a resource-allocation graph, each resource type has exactly one instance, which of the following indicate a deadlock situation? *
1/1
The graph has no cycle.
The graph is not connected.
The graph has at least one cycle.
The graph is connected.

283. **d** ____ is when, in modern printing systems, a disk accepts output from several Deadlock occurs on a modern printer when ____. *
1/1
The network connection for the printer overflows with too many requests to use the printer.
The buffer fills up with too many print jobs and the printer cannot decide which one to print.
Too many users attempt to access the printer at the same time.
The printer needs all of a job's output before it will begin printing, but the spooling system fills the available disk space with only partially completed output.

284. **c** Which of the following is not a condition necessary for deadlock to exist? *
1/1
Circular-wait condition
Hold and wait condition
Preemption condition
Mutual-exclusion condition

285. **a** For matrix-based algorithm to detect deadlock, total number of instances of each resource is given by: *
1/1
Existing resource vector
Request matrix
Available resource vector
Current allocation matrix

286. **c** What is the way to recover from a deadlock: *
1/1
Rollback
Killing processes
All of the other choices
Preempt a resource

287. **b** What's true about preemptable resources? *
1/1
Will cause the process to fail if taken away
Can be taken away from a process with no ill effects
Can share among processes
None of the other choices

288. **a** For matrix-based algorithm to detect deadlock, number of instances of each resource each process needs is given by *
1/1
Request matrix
Available resource vector
Existing resource vector
Current allocation matrix

289. **c**

Deadlock definition: "A set of processes is deadlocked if each process in the set is waiting for an event that only another process in the set can cause." What does event mean? *
1/1
None of the other choices
The event is press some key on keyboard
The event is release of a currently held resource
The event is some mouse click

290. **a** Which deadlock condition does order resources numerically attack? *
1/1
Circular-wait condition
Hold and wait
No preemption
Mutual exclusion

291. **d** For matrix-based algorithm to detect deadlock, number of instances of each resource each process currently holds is given by: *
1/1
Available resource vector
Existing resource vector
Request matrix
Current allocation matrix

292. **a** An example of preemptable resources is *
1/1
Memory
CD-ROM device
None of the other choices
DVD device

293. **d** _____ is when each process involved in the impasse is waiting for another to voluntarily release the resource so that at least one will be able to continue on. *
1/1
Mutual-exclusion condition
No preemption condition

Hold and wait condition
Circular-wait condition

294. **a** Failure to lock database records before updating them may result in a ____ between processes *
1/1
Race
Struggle
Livelock
Deadlock

295. **c** In a directed graph used to model deadlock, resources are represented using *
1/1
Ellipse
Circular
Square
Rectangle

296. **a** An algorithm designed to detect starvation by tracking how long each job has been waiting for resources is the same concept as ____. *
1/1
Aging
Deadlock
Preemption
Round robin

297. **c** What is the correct approach with the Mutual Exclusion condition to prevent Deadlock? *
1/1
Request all resources initially
Order resources numerically
Spool everything
Take resources away

298. **c** Each of the following characteristics applies to deadlock avoidance except *
1/1
Relying on ability to predict effect of satisfying resource

	allocation requests Inherently conservative strategy Widely used in modern operating systems None of the other choices
299. **c**	What's true about non-preemptable resources? * 1/1 Can be taken away from a process with no ill effects None of the other choices Will cause the process to fail if taken away Can share among processes
300. **a**	_____ allows a resource to be held by a process as long as it is needed.. * 1/1 No preemption condition Circular-wait condition Mutual-exclusion condition Hold and wait condition
301. **a**	A system is said to be in an unsafe state if * 1/1 The operating system cannot guarantee that all current processes can complete their work None of the other choices A process is indefinitely postponed The system is deadlocked
302. **c**	What is the correct approach with the hold and wait condition to prevent Deadlock? * 1/1 Take resources away Spool everything Request all resources initially Order resources numerically
303. **b**	In a directed graph used to model deadlock, processes are represented using * 1/1 Rectangle

Circular
Ellipse
Square

304. **c** All deadlocks involve conflicting needs for resources by * 1/1
Three or more processes
None of the other choices
Two or more processes
One or more processes

305. **d** Dijkstra's Banker's Algorithm require the system to maintain the resource information for each process, including: *
1/1
a. The maximum resources that can be requested by the process
b. The number of resources currently acquired by the process
c. A count of the system's total resources
d. The maximum resources that can be requested and The number of resources currently acquired by the process

306. **c** What is the weakness of the Banker's algorithm? * 1/1
Enabling the number of resources to fluctuate
Enabling processes to hold their resources indefinitely
Requiring that processes state their maximum needs in advance
Allowing the population of processes to vary over time

307. **d** If a system is deadlocked, no processes can * 1/1
release resources
be awakened
run
all of the other choices

308. **d**

	Which deadlock condition does take resources away attack? * 1/1 Circular-wait condition Hold and wait Mutual exclusion No preemption
309. **d**	Which method is used to prevent the communication deadlock? * 1/1 Timeouts Acknowledge signal Handling alarm All of the other choices
310. **a**	For matrix-based algorithm to detect deadlock, number of instances of resource currently unassigned is given by: * 1/1 Available resource vector Request matrix Current allocation matrix Existing resource vector
311. **a**	In a directed graph used to model deadlock, ____ represents deadlock. * 1/1 Cycle Dashed arrow Solid arrow Any path
312. **d**	What is the correct approach with the No preemption condition to prevent Deadlock? * 1/1 Order resources numerically Spool everything Request all resources initially Take resources away

313. **b**

A possibility of deadlock can occur: *
1/1
If a system is in safe state
If a system is in unsafe state
If a system is in instable state
None of the other choices

314. **a**

_____ is when, in modern printing systems, a disk accepts output from several users and acts as a temporary storage area for all output until the printer is ready to accept it *
1/1
Spooling
Buffering
Lagging
Spoofing

315. **b**

The first and simplest recovery method, and the most drastic, is to ____. *
1/1
Select a nondeadlocked job, preempt the resources it's holding, and allocate them to a Deadlocked process so it can resume execution, thus breaking the deadlock
Terminate every job that's active in the system and restart them from the beginning
Identify which jobs are involved in the deadlock and terminate them one at a time, checking to see if the deadlock is eliminated after each removal
Terminate only the jobs involved in the deadlock and ask their users to resubmit them

316. **c**

Which of the following statements does not apply to manual deadlock management? *
1/1
Recovery may involves rebooting the system
Deadlock is relatively infrequent for some system resources
OS designers are normally very sensitive to deadlock

	when designing resource managers None of the other choices
317. **b**	One of way to prevent a deadlock is _____ * 1/1 Locks one of the processes Spool everything Kills one of the processes Rollback
318. **a**	____ occurs when two processes do not release control of resources they are using. * 1/1 Hold and wait condition Circular-wait condition Mutual-exclusion condition No preemption condition
319. **b**	A simplest way to break a deadlock is to * 1/1 Locks one of the processes Kills one of the processes Rollback Preempt a resource
320. **b**	____ is the act of allowing only one process to have access to a dedicated resource. * 1/1 No preemption condition Mutual-exclusion condition Hold and wait condition Circular-wait condition
321. **d**	Sequence of events required to use a resource is * 1/1 Use the resource, Release the resource, Request the resource None of the other choices Request the resource, Release the resource, Use the resource

	Request the resource, Use the resource, Release the resource
322. **c**	Which strategy is used in the Banker's algorithm for dealing with deadlocks? * 1/1 Deadlock prevention Deadlock detection Deadlock avoidance Deadlock ignorance
323. **a**	Assume the following events and actions take place: 1. P1 requests and is allocated the printer R1; 2.P1 releases the printer R1; 3. P2 requests and is allocated the disk drive R2; 4. P2 releases the disk R2; 5. P3 requests and is allocated the plotter R3; 6. P3 releases the plotter R3. Which of the following statement is true? * 1/1 There is no deadlock Event 5 caused deadlock. Event 6 caused deadlock. Event 4 caused deadlock
324. **b**	Which deadlock condition does spool everything attack? * 1/1 Hold and wait Mutual exclusion Circular-wait condition No preemption
325. **a**	A network that's congested or has filled a large percentage of its I/O buffer space can become deadlocked if it doesn't have ____ to control the flow of messages through the network. * 1/1 Protocols Policies Procedures Rules

326. **a** The scheme of ____ removes the possibility of a circular wait and therefore guarantees the removal of deadlocks. *
1/1
Hierarchical ordering
Preemption
Saving and restoring job state
Requesting all resources before job run

327. **d** Typical approaches to handle deadlocks do not include: *
1/1
Avoidance
Prevention
Detection
Deterrence

328. **d** What is the correct approach with the Circular wait condition to prevent Deadlock? *
1/1
Take resources away
Request all resources initially
Spool everything
Order resources numerically

329. **c** What is not the way to recover from a deadlock: *
1/1
Killing processes
Preempt a resource
Locks one of the processes
Rollback

330. **D** Which of the following is not a well-known technique for organizing the physical storage blocks for a file?
*1/1
Indexed block allocation
Contiguous block allocation
Linked list block allocation
Sparse block allocation

331. **A** There are ____ entries per page in the Page table.
1
2
3
4

332. **C** Which of the following information bits used by the various page replacement policies indicates if the page has been called lately?
a. Locality bit
b. Status bit
c. Referenced bit
d. Modified bit

333. **B** In separating I/O and memory space system, the set of I/O ports form the I/O port space. This mechanism allows:
Programs in user space can easily access to I/O devices
Only programs in kernel can access to I/O devices
Both programs in user space and kernel can access to I/O devices
None of the other choices

334. **A** Each of the following characteristics applies to deadlock avoidance except *
A. Widely used in modern operating systems
B. Relying on ability to predict effect of satisfying resource allocation requests
C. Inherently conservative strategy
D. None of the other choices

335. **C** In the memory-mapped I/O system, in order that CPU communicates with the control registers in the devices, the control register is assigned :
Index
I/O address
Unique memory address
None of the other choices

336. **A** Which of the following information bits in the entry of page table is used to indicate Page Fault?

	Present/absent bit Status bit Referenced bit Modified bit
337. **B**	The page table for each process maintains _____ . A) the physical memory location of the process B) the frame location for each page of the process C) the page location for each frame of the process D) the logical memory location of the process
338. **A**	In separating I/O and memory space system, the set of I/O ports form the I/O port space. This mechanism allows: A. Programs in user space can easily access to I/O devices B. None of the other choices C. Only programs in kernel can access to I/O devices D. Both programs in user space and kernel can access to I/O devices
339. **c**	Which of the following statements is incorrect about user mode and kernel mode? * A. In kernel mode, the OS can execute every instruction in the instruction set B. Having two modes of operation helps prevent user programs from accessing critical instructions C. None of the other choices D. In user mode, user program can execute only a subset of instructions
340.	Assume jobs A-D arrive in quick succession in the READY queue. Using round robin scheduling (quantum=4), the average turnaround time for each job is ____. * 1 point 18.25 5 73 20
341. **C**	

Consider a swapping system in which the memory consists of the following hole sizes: 10 K, 4 K, 20 K, 15 K, 9 K. Assume worst fit algorithm is used. Which holes are taken for successive segment requests of 8 K, 12 K, 10 K? *
1 point
10 K, 20 K, 15 K
9 K, 15 K, 10 K
20 K, 15 K, left over of 20 K
None of the other choices

342. **1**

A computer has four page frames. The time of loading, time of last access, and the R and M bits for each page are as shown below (the times are in clock ticks). Which page will Second Chance replace? *
1 point
Page -------loaded-----last ref.-----R-----M
0----------226----------280--------0-----0
1----------160----------265--------0-----1
2----------110----------270--------1------0
3----------120----------285--------1------1
2
3
0
1

343. **D**

The special files are (choose 1 answer only): *
0/1
character special file
none of the other choices
block special file
character special files and block special files

344. **D**

Which strategy is used in the Banker's algorithm for dealing with deadlocks? *
1 point
Deadlock detection
Deadlock ignorance

	Deadlock prevention Deadlock avoidance
345. **C**	Which of the following synchronization mechanisms does not rely on busy-waiting? * 1 point Lock variables Strict alternation Semaphores Peterson's algorithm
346. **C**	In a directed graphs model, a possible of deadlock can occur: * 1 point None of the others If graph contains a cycle and several instances per resource type If graph contains a cycle and only one instance per resource type If graph contains no cycle
347. **C**	Which of the following statements about segmentation is false? * 1 point The total address space can be more than the size of physical memory There are several linear address spaces None of the other choices Sharing of procedures between different users can be facilitated
348. **0** **s < 0** **None of the other choices = B**	Which of the following conditions of semaphore variable "s" implies a busy critical region? * 1 point s > 0 s
349. **C**	Which of the following systems is used in time-critical environments where data must be processed within a strict time limit? *

1 point
Embedded
Hybrid
Real-time
Interactive

350. **A** In which of the following environments preemption is essential? *
0/1
Interactive
Real time
Batch
None of the other choices

351. **D** All deadlocks involve conflicting needs for resources by *
1 point
Three or more processes
One or more processes
None of the other choices
Two or more processes

352. **a** Which of the following statements is incorrect about Memory-mapped I/O and Programmed I/O? *
1/1
None of the other choices
Programmed I/O is a way to actually carry out the I/O operations
Programmed I/O may use memory-mapped I/O to fulfill the I/O tasks
Memory-mapped I/O is a way to control the device

353. **D** Which of the following statements is incorrect about Translation Look-aside Buffer (TLB)? *
1 point
TLB only maintains a subset of the entries stored in the full memory-based page table
When there is a TLB miss the system needs to access the page table
None of the other choices

	The use of TLB eliminates the need for keeping a page table in memory
354. **B**	Which of the following is not correct about the reliability of different RAID levels? * 1 point In RAID level 2, a single bit error in a word can be detected AND corrected There is no reliability support in RAID level 0 All RAID levels can survive one disk crash In RAID levels 3, 4, 5 a single bit error in a word can be detected
355. **C**	Which of the following statements is incorrect about Translation Look-aside Buffer (TLB)? * 1 point a. A TLB is sometimes known as an associative memory b. None of the other choices c. A TLB miss implies a disk operation will follow d. Each entry of a TLB contains the information about one page, including the virtual page number and the corresponding page frame
356. **B**	Which of the following statements is incorrect about I/O using DMA? 1 point DMA helps reduce the number of interrupts None of the other choices In essence, DMA is programmed I/O, except the fact that DMA, instead of the CPU, does all the work DMA helps free up the CPU during the I/O to do other work
357. **B**	Five batch jobs A through E, arrive at a computer center at almost the same time. They have estimated running times of 8, 6, 2, 10, and 4 minutes. Their (externally determined) priorities are 3, 5, 2, 1, and 4, respectively, with 5 being the highest priority. Determine the mean process average turnaround time for priority scheduling. Ignore process switching overhead . *

1 point
10,8 minutes
16,8 minutes
54 minutes
12,8 minutes

358. **C**

A page fault means that we referenced a page *
1 point
a. with an incorrect I/O request
b. that was outside the memory boundaries
c. that was not in main memory
d. that was not in secondary storage

359. **B**

Which is a wrong statement about the quantum used in Round Robin algorithm? *
1 point
If the quantum is very large, RR is essentially FCFS
None of the other choices
A reasonable value of quantum is around 20-50 ms
If the quantum is very small, the CPU efficiency is reduced

360. **B**

With paging, when is the internal fragmentation possible? *
1 point
Such thing cannot happen
The last page of the job is less than the maximum page size
Page does not fit the frame
The virtual memory assigned to the program is less than the physical memory assigned to it

361. **c**

Which of the following is an advantage of Memory-mapped I/O? *
1 point
a. Since there is only one address space, all I/O devices must examine all memory references to see which ones to response to
b. None of the other choices
c. Since the control registers of devices are mapped into the memory space, device drivers can be written without

	using Assembly language d. Using memory-mapped I/O, caching a device control register is not acceptable
362. **A**	A(n) _____ is provided to make system calls from some programming languages * 1/1 procedure library none of the other choices pointer operator
363. **D**	Which RAID level duplicates all the disks? * 1/1 4 3 2 1
364. **a**	Which of the following statements is not correct about Graphic adapter? * 1/1 None of the other choices Contains a special memory called video RAM Supports different method of coding pixel color Supports some number of screen sizes (resolution)
365. **b**	The methods determine where page is on the disk when it is paged out is * 1/1 Paging to a static swap area Both Paging to a static swap area and Backing up pages dynamically None of the other choices Backing up pages dynamically
366. **b**	Which is not a DVD Improvement on CDs to increase the capacity? * 1/1 Smaller pits

	Diameter of disc A kind laser (red, blue) A tighter spiral
367. **B**	Dual-layer, double-sided DVD can hold ____ . * 1/1 9.4 GB 17 GB 8.5 GB 4.7 GB
368. **b**	Which FAT type is used, if the maximum partition size is 256 MB and the block size is 4KB? * 1/1 FAT-32 FAT-16 None of the other choices FAT-12
369. **d**	Which deadlock condition does "Request all resources initially" attack? * 1/1 Circular-wait condition Mutual exclusion No preemption Hold and wait
370. **b**	Which of the following is not a task of I/O management of OS? * 1/1 Manage main memory for the devices using caching, buffering, and spooling Mapping files onto secondary storage Maintain and provide a general device-driver interfaces Drivers for specific hardware devices
371. **d**	The scheduling strategy where each process in the queue is given a certain amount of time. After this time has elapsed, the process is preempted and added to the end of the ready queue is referred to as: *

1/1
Prioritization
All of the other choices
LIFO
Round-Robin

372. **b** In terms of main memory efficiency the method of "Backing up pages dynamically" in comparison with the method of "Paging to a static swap area" is *
1/1
Better
Worse
Equal
Nearly equal

373. **C** What is the correct approach with the "No preemption condition" to prevent Deadlock? *
1/1
Order resources numerically
Spool everything
Take resources away
Request all resources initially

374. **c** Assuming that it takes 10 nsec to copy a byte, how much time does it take to completely rewrite the screen of a 1200 x 800 pixels graphics with 24- bit color? *
1/1
28.8 micro-sec
288 msec
28.8 msec
288 micro-sec

375. **A** Strategy used for dumping a disk to tapes is: *
1/1
Both physical dump and logical dump
Physical dump
Logical dump
None of the other choices

376. **d**

Some systems increase the priority of jobs that have been in the system for an unusually long time to expedite their exit, which is known as ____.? *
1/1
Accelerated priority
Bumping
Lagging
Aging

377. **B**

Five batch jobs A through E, arrive at a computer center at almost the same time. They have estimated running times of 8, 6, 2, 10, and 4 minutes. Their (externally determined) priorities are 3, 5, 2, 1, and 4, respectively, with 5 being the highest priority. Determine the average turnaround time for priority scheduling. Ignore process switching overhead. *
1/1
6 minutes
16.8 minutes
12.8 minutes
18.8 minutes

378. **b**

A computer uses a programmable clock in square-wave mode. If 500 MHz crystal is used, what should be the value of the holding register to achieve a clock resolution of 10 msec (Clock tick)? *
1/1
50,000,000
5,000,000
500,000
50,000

379. **c**

Which is not a goal of a scheduling algorithm for batch systems? *
0/1
CPU utilization
Turnaround time
Response time
Throughput

380. **b** Which does the power of CPU decrease to if it run at half speed? *
1/2
1/4
None of the other choices
1/8

381. **c** How much cylinder skew is needed for a 7200- RPM (rotate per minute) disk with the track-to-track seek time of 1 msec? The disk has 200 sectors of 512 bytes on each track. *
1/1
36 sectors
12 sectors
24 sectors
18 sectors

382. **D** Which solutions are used to solve the shared libraries? *
1/1
Static reallocation and position-independent code
None of the other choices
Relocation on the fly and position-independent code
Position-independent code

383. **a** Which is not attribute of MS-DOS file? *
1/1
Lock
Read-Only
Hidden, System
Archived

384. **c** To specify an address in this segmented memory, the _____ form is used *
1/1
<physical address, offset>
<virtual address, offset>
<segment-number, offset>
<process, offset>

385. **a**

	Which deadlock condition does "Take resources away" attack? * 1/1 No preemption Mutual exclusion Circular-wait condition Hold and wait
386. **d**	An operation concerning Stable Storage is: * 1/1 Stable Reads Crash recovery Stable writes All of the other choices
387. **a**	Which ways are used to keep track of free block in disk space management? * 1/1 Both linked list method and bitmap method A linked list method None of the other choices A bitmap method
388. **c**	Which is space efficiency, if 4KB-file using file system with 8KB-block? * 1/1 75% 100% 50% 25%
389. **b**	Of the three components of access time in a disk, ____ is the longest. * 1/1 Transfer time Seek time Delay time Search time
390. **d**	

Which RAID level employs a Hamming code to correct single bit errors and detect double bit errors? *
1/1
3
1
4
2

391. **C**

In modern printing systems, a disk accepts output from several users, Deadlock occurs when ____. *
1/1
a. The network connection for the printer overflows with too many requests to use the printer.
b. Too many users attempt to access the printer at the same time.
c. The printer needs all of a job's output before it will begin printing, but the spooling system fills the available disk space with only partially completed output.
d. The buffer fills up with too many print jobs and the printer cannot decide which one to print.

392. **a**

Which of the following is an Operating System component? *
1/1
Process Management
Speed Management
Space Management
Time Management

393. **b**

The Joliet Extensions provide _____ *
1/1
Directory nesting deeper than 8 levels
All of the other choices
Directory names with extensions
Long file name supported Unicode character

394. **b**

An algorithm designed to detect starvation by tracking how long each job has been waiting for resources is the same concept as ____. *
1/1

Preemption
Aging
Round robin
Deadlock

395. **c** Multiprogramming increases processor efficiency by *
1 point
Increasing processor speed
Eliminating all idle processor cycles
Taking advantage of time wasted by long wait I/O handling
All of the other choices

396. **c** Page replacement algorithms determine *
1 point
when the system should update page table entries
how many pages should be added to main memory
which page to remove to provide space for an incoming page
which pages should be brought into memory because a process is likely to reference them soon

397. **d** Which of the following process state transitions is illegal? *
1 point
running -> ready
blocked -> ready
ready -> running
blocked -> running

398. **a** An example of the key differences that can exist across (and even in) classes of I/O devices is: *
1 point
All of the other choices
Data rate
Data representation
Error conditions

399. **c** Which is NOT a file attribute? *
1 point
Time of Access

	Owner Shape Size
400. **a**	If in a resource-allocation graph, each resource type has exactly one instance, which of the following indicates a deadlock situation? * 1 point The graph has at least one cycle The graph is not connected The graph has no cycle The graph is connected
401. **d**	The ___ is the essential component of the operating system that remains in RAM when your computer is powered on. * 1 point system file registry core kernel
402. **d**	A fetched instruction is normally loaded into * 1 point None of the other choices Program Counter Accumulator Instruction Register
403. **a**	A file is generally defined to be: * 1 point A collection of similar records A collection of related fields A basic element of data All of the other choices
404. **c**	Which of the following is not a CPU scheduling criterion? * 1 point Throughput

	CPU utilization Burst time Response time
405. **A**	The interface between the operating system kernel and the user programs is defined by the set of ___ that the operating system provides * 1 point System calls Processes Functions Threads
406. **B**	Which of the following is not a condition for deadlocks? * 0/1 Hold and Wait Preemption Mutual exclusion Circular Wait
407. **c**	Which of the following information bits in the entry of page table is false? * 1 point Protection bit Present/absent bit Mode bit Modified bit
408. **b**	Which of the following information bits in the entry of page table is used to indicate what kinds of access are permitted? * 0/1 Modified bit Protection bit Present/absent bit Caching disabled