

Operating systems

1. Semaphores are used to
 - a. Synchronise critical resources to prevent deadlock.
 - b. Synchronises critical resource to prevent contention.
 - c. Do I/O
 - d. Facilitate memory management
2. Kernel threads is implemented by
 - a. Library threads.
 - b. User level thread
 - c. Operating systems
 - d. None of these
3. In multithread shares
 - a. Code, Data , Files.
 - b. Code , Data , Stack.
 - c. Code , Stack , register
 - d. Stack, Register.
4. Virtual memory is
 - a. An extremely large main memory.
 - b. An extremely large secondary memory.
 - c. An illusion of an extremely large memory.
 - d. A type of memory used in super computers.
5. Dirty bit for a page in a page table
 - a. Helps to avoid unnecessary writes on a paging devices
 - b. Helps maintain LRU information.
 - c. Allows only read on a page
 - d. None of these
6. Thrashing
 - a. Reduces page I/O

- b. Decreases the degree of multiprogramming
 - c. Implies excessive page I/O
 - d. Improves the system performance.
7. Suppose that a process is in "BLOCKED " state waiting for some I/O services. When the services is completed , it goes to the
- a. Running state
 - b. Ready state
 - c. Suspended state
 - d. Terminated state
8. Which of the following page replacement algorithm suffers from Beladys anomaly?
- a. Shortest job first
 - b. Round robin
 - c. First come first serve
 - d. Elevator.
9. Dijkstras banking algorithm in an operating systems in an operating system solves the problem of
- a. Deadlock avoidance
 - b. Deadlock recovery
 - c. Mutual exclusion
 - d. Context switching.
10. Critical region is
- a. A part of the operating system which is not allowed to be accessed by any process
 - b. A set of instructions that access common shared resources which exclude one another time
 - c. The portion of the main memory which can be accessed only by one process at a time.
 - d. None of these.
11. Necessary condition for dead lock is

- a. Non pre-emption and circular wait
- b. Mutual exclusion and partial allocation
- c. A and B
- d. None of the above

12. Page fault occurs when

- a. The page is corrupted by application software
- b. The page is in main memory
- c. The page not in main memory
- d. The tries to divide a number by 0

13. At a particular time the value of a counting semaphore is 10. It will become 7 after

- a. 3V operation
- b. 3P operation.
- c. 5V operation and 2P operation
- d. 12V operation and 1P operation.

14. Which of the following is a service not supported by operating system

- a. Protection
- b. Accounting
- c. Compilation
- d. I/O operation.

15. The first fit, best fit, worst fit algorithm can be used for

- a. Contiguous allocation of memory
- b. Linked allocation of memory
- c. Indexed allocation of memory
- d. All of the above.

16. In a multiprogramming environment

- a. The processor executes more than one process at a time.
- b. The programs are developed by more than one person
- c. More than one process resides in the memory.

- d. A single user can execute many programs at the same time.
17. In a time sharing operating system when the time slot given to a process is complete the process goes from the "RUNNING" state to
- a. Blocked state
 - b. Ready state
 - c. Suspended state
 - d. Terminated state
18. In memory hierarchy moving from register to hard disk which of the following are false?
- a. Memory size increase
 - b. Cost per unit decreases
 - c. Access time decreases
 - d. None of the above.
19. A signal is a virtual interrupt which is created by which of the following
- a. Hardware
 - b. Os
 - c. PCB
 - d. TLB
20. In process control block(PCB) of all running process resides in which of the following?
- a. RAM
 - b. Harddisk
 - c. Cache
 - d. None of these
21. When more than one process are running concurrently on a system
- a. Batched system
 - b. Real time system
 - c. Multiprogramming system
 - d. Multiprocessing system

22. Match

- a. Run -> ready 1. Not possible
- b. Run ->blocked 2. When a process terminates itself
- c. Blocked -> run 3. When a process time quantum expires
- d. Run -> terminated 4. When a process issues an I/O request.

Codes

	A	B	C	D
a.	1	4	3	2
b.	2	1	3	4
c.	3	4	1	2
d.	1	4	3	2

23. If a system contains CPU bound process then which of the following scheduling algorithm produces maximum efficiency of the CPU

- a. FIFO
- b. Round robin
- c. SJF
- d. Priority

24. The time interval between the times of submission of a process to the time of completion of a process is known as which of the following.

- a. Waiting time
- b. Response time
- c. Turn around time
- d. None of these

25. Petersons algorithm is the solution of which of the following problem

- a. Deadlock
- b. Mutual exclusion
- c. Thrashing
- d. Paging

26. Which of the following statement is not true?

- a. Dead lock can never occur if resources can be shared by competing processes.
 - b. Deadlock can never occur if the resources must be requested in the same order by processes
 - c. The bankers algorithm for avoiding deadlock requires knowing resources requirements in advance.
 - d. If the resource allocation graph depict a cycle than deadlock has certainly occurred.
27. Suppose we have a system in which process is in hold and wait condition then which of the following approach prevent the deadlock.
- a. Request all resource initially
 - b. Spool everything
 - c. Take resource away
 - d. Order resource numerically
28. A state is safe if the system can allocate resource to each process in some order and still avoid deadlock which of the following is true
- a. Deadlocked state is unsafe
 - b. Unsafe state may lead to a deadlock situation
 - c. Unsafe state must lead to a deadlock
 - d. Deadlock state is a subset of unsafe state.
- a) a,b,c b) a,b c) a,c,d d) a,b,d
29. Four page frames and page reference in the order 0,2,1,3,2,1,0,1,2,1. By using LRU page replacement algorithm the least recently used page will be
- a. 0
 - b. 1
 - c. 2
 - d. 3

30. If the CPU scheduling policy is FCFS the average waiting time will be
- 12.8ms
 - 8ms
 - 16ms
 - None of the above
31. If the CPU scheduling policy is SJF the average waiting time without pre-emption will be
- 12.8ms
 - 6.8ms
 - 17ms
 - None of the above
32. If the CPU scheduling policy is SJF with pre-emption the average waiting time will be
- 8ms
 - 14ms
 - 5.6ms
 - None of the above
33. Given reference to the following page by a program
0,9,0,1,8,1,8,7,8,7,1,2,8,2,7,8,2,3,8,3
- If the program contains 3 page frames. How many page faults will occur in optimal page replacement policy?
- 4
 - 5
 - 6
 - 7
34. The only state transition that is initiated by the user process itself is
- Block
 - Dispatch
 - Wakeup
 - None of the above

35. An operating system contains 3 processes each requiring 2 units of resources R. The minimum number of units of R such that no deadlock will ever occur is
- 3
 - 4
 - 5
 - 6
36. In round robin CPU scheduling, as the time quantum is increased, the average turnaround time
- Increase
 - Decrease
 - Remains constant
 - Varies irregularly
37. In which of the following scheduling policies does context switch never take place?
- Round robin
 - SJF(non preemptive)
 - Preemptive
 - FCFS
- A) 4 B) 1,3 C) 2,3 D) 2,4
38. Aging is
- Keeping track of cache contents
 - Keeping track of what pages are currently residing in the memory
 - Keeping track of how many times a given page is referenced
 - Increasing the priority of jobs to ensure termination in a finite time
39. A memory page containing a heavily used variable that was initialized very early and is in constant use is removed when the page replacement algorithm used is
- LRU
 - FIFO
 - LFU
 - None of these

40. Consider the following statements with respect to userlevel threads and kernel level threads

1. Context switching is faster with kernel supported threads
 2. For userlevel threads a system call can block the entire process
 3. Kernel supported threads can be scheduled independently
 4. Userlevel threads are transparent to the kernel
- a. 2,3,4 b. 2,3 c.1,3 d.1,2

41. Which of the following scheduler reduces the degree of multiprogramming?

- a. Long term scheduler
- b. Short term scheduler
- c. Mid term scheduler
- d. None of these

42. When a computer is "SWAPPING" it is

- a. Moving data from the hard drive to the floppy drive
- b. Moving data from main memory to the swap files on the hard drive
- c. Moving data between register in the memory
- d. None of the above

43. Consider a system with five process p0 through p4 and three resource types A,B,C. Resource type A has 10 instances , resources type B has 5 instances and resource type C has 7 instances. Suppose that at time t0 the following snapshot of the system has been taken:

	Allocation			Max			Available		
	A	B	C	A	B	C	A	B	C
P0	0	1	0	7	5	3	3	3	2
P1	2	0	0	3	2	2			
P2	3	0	2	9	0	2			
P3	2	1	1	2	2	2			
P4	0	0	2	4	3	3			

Which of the following is the safe sequence for the above system?

- P0,p2,p3,p1,p4
- P1,p2,p4,p0,p3
- P1,p3,p4,p2,p0
- We can not find the safe sequence

44. A boot strap is

- A memory device
- A small initialisation computer program to startup an inactive computer
- An error correction device / technique
- An I/O devices

45. The interface between kernel and I/O devices is a

- Device driver
- Kernel interface
- I/O interface
- Device interfaces

46. Memory protection is achieved using

- Accumulator
- Trap
- Base and limit register
- Time slice

47. Segmentation results in

- a. Internal fragmentation
- b. External fragmentation
- c. Both internal and external fragmentation
- d. Neither internal and external fragmentation

48. The system call to create a process in unix is

- a. Execve
- b. Wait
- c. Creat
- d. Fork

49. Process P1 holds resource R1 and waits for resource R2 . process P2 holds resource R2 and waits for resource R1. There are only single instances of R1 and R2 the system is said to be

- a. Synchronised
- b. Deadlock
- c. Waiting
- d. Running

50. If there are 32 segments each of size 2 K bytes then logical address should have

- a. 13bits
- b. 14 bits
- c. 15bits
- d. 16bits

51. Spooling is most beneficial in multiprogramming environment where

- a. Most jobs are CPU bound
- b. Most jobs are I/O bound
- c. Jobs are evenly divided as I/O bound and CPU bound
- d. There is limited primary memory and need for secondary storage

52. Which of the following statement is false?

- a. Segmentation suffers from external memory
- b. Paging suffers from internal fragmentation

- c. Segmentation memory can be pages
 - d. Virtual memory is used only in multi user system.
53. A computer system has 6 tape drives with n process competing for them .Each process may need 3 tape drives . The maximum value of 'n' for which the system is guaranteed to be deadlock free is
- a. 4
 - b. 3
 - c. 2
 - d. 1
54. In real time operating system which one of the following is most suitable scheduling scheme
- a. Round robin
 - b. FCFS
 - c. Pre emptive
 - d. Random scheduling
55. In an absolute loading scheme which loader function is accomplished by assembler
- a. Reallocation
 - b. Allocation
 - c. Linking
 - d. Loading
56. Relocatable program is
- a. Cannot be used with fixed partitions
 - b. Can be loaded almost anywhere in memory
 - c. Do not need a linker
 - d. Can be loaded only at one specific location
57. Relocating bits used by relocating loader are specified by
- a. Relocating loader
 - b. Linker
 - c. Assembler

d. Macroprocessor

58. Match the following

- | | |
|--------------------------------------|------------------------------------------------|
| a. Contiguous allocation | 1) this scheme supports very large file sizes |
| b. Linked allocation only sequential | 2) this allocation technique supports |
| | Files |
| c. Indexed allocation | 3) Number of disks required to access files is |
| | Minimal |
| d. Multilevel index wastage of | 4) this technique suffers from maximum |
| | space in storing pointers |

codes

	a	b	c	d
A.	3	4	2	1
B.	3	2	4	1
C.	1	2	4	3
D.	1	4	2	3

59. A virtual memory based memory management algorithm partially swaps out a process . this is an example of

- a. Short term scheduling
- b. Long term scheduling
- c. Medium term scheduling
- d. Mutual exclusion

60. The problem of indefinite blockage of low priority jobs in general priority scheduling algorithm can be solved using

- a. Parity bit
- b. Aging
- c. Compaction
- d. Timer

61. Resource are allocated to process on non sharable basis is
- Mutual exclusion
 - Hold and wait
 - No pre-emption
 - Circular wait
62. CPU performance is measured through
- Through put
 - MHZ
 - FLAPS
 - KBPS
63. Information about process is maintained in
- Stack
 - Translation look aside buffer
 - Process control block
 - Program control block
64. Consider a logical address space of 8 pages of 1024 words each , mapped onto a physical memory of 32 frames. How many bits are there in the physical address and logical address respectively
- 5,3
 - 10,10
 - 15,13
 - 15,15
65. Virtual memory is
- Related to virtual reality
 - A form of ROM
 - A form of RAM
 - None of the above
66. How states can a process be in?
- 2

- b. 3
- c. 4
- d. 5

67. A special software that is used to create a job queue is

- a. Driver
- b. Spooler
- c. Interpreter
- d. Linkage editor

68. Which of the following permanent database that has an entry for each terminal symbol

- a. Literal table
- b. Identifier table
- c. Terminal table
- d. Source table

69. A deadlock in an operating system is

- a. Desirable process
- b. Undesirable process
- c. Definite waiting process
- d. All of the above

70. Object code is the output of

- a. Operating system
- b. Compiler or assembler
- c. Only assembler
- d. None of the above

71. In bakery algorithm to solve the critical section problem

- a. Each process is put into a queue and picked up in an order manner
- b. Each process receives a number (may or may not be unique) and the one with the lowest number is served next

- c. Each process gets a unique number and the one with highest number is served next
- d. Each process gets a unique number and the one with the lowest number is served next

72. In order to allow only one process to enter its critical section , binary semaphore are initialized to

- a. 0
- b. 1
- c. 2
- d. 3

73. A program is located in the smallest available hole in memory is

- a. Best fit
- b. First fit
- c. Worst fit
- d. Buddy fit

74. A semaphore count of negative n means ($s=-n$) that a queue contains ----- waiting process

- a. $N+1$
- b. N
- c. $N-1$
- d. 0

75. In the process management round robin method is essentially the preemptive version of

- a. FILO
- b. FIFO
- c. SSF
- d. Longest time first

76. Variable partition memory management technique with compaction results in

- a. Reduction of fragmentation
- b. Minimal wastage

- c. Segmentation sharing
- d. None of these

77. The linker

- a. Is similar to interpreter
- b. Uses source code as its input
- c. Is required to create a load module
- d. None of the above

78. An assembly program contains

- a. Imperative and declarative statements
- b. Imperative statements and assembler statements
- c. Imperative statements, declarative statements and assembler directives
- d. Declarative statements and assembler directives

79. Which are the assembler directives

1. EQU 2. ORIGIN 3. START 4. END
- a. 2,3,4 b. 1,3,4 c. 3,4 d. 1,2,3,4

80. If executing program size is greater than the existing RAM of the computer, it is still possible to execute the program if the OS supports

- a. Multitasking
- b. Virtual memory
- c. Paging system
- d. None of the above

81. Assembler program is :

- a. Dependent on the operating system
- b. Dependent on the compiler
- c. Dependent on hardware
- d. Independent of hardware

82. A single instruction in an assembly language program contains

- a. One micro operation
- b. One macro operation

- c. One instruction to compiled in a single pass
 - d. One machine code instruction
83. Absolute loader demands that the programmer needs to know the
- a. Start address of the available main memory
 - b. Total size of the program
 - c. Actual address of the data location
 - d. Absolute values of the operands used
84. In an absolute loader scheme which loader function is accomplished by programmer?
- a. Allocation
 - b. Linking
 - c. Reallocation
 - d. Both a and b
85. The dynamic binding occurs during
- a. compile time
 - b. runtime
 - c. linking time
 - d. pre processing time
86. producer consumer problem can be solved using
- a. semaphore
 - b. event counters
 - c. monitors
 - d. all the above
87. which actives is not included in the first pass of two pass assembler?
- a. Build the symbol table
 - b. Construct the intermediate code
 - c. Separate mnemonic opcode and operand field
 - d. None of these
88. The principle of locality reference justifies the use of

- a. Virtual memory
- b. Interrupts
- c. Cache memory
- d. Secondary memory

89. Which is the correct definition of a valid process transition in an operating

- a. Wake up: ready \rightarrow running
- b. Dispatch: ready \rightarrow running
- c. Block : ready \rightarrow running
- d. Timer run out : ready \rightarrow running

90. In two pass assembler the symbol table is used to store

- a. Label and value
- b. Only value
- c. Mnemonic
- d. Memory location

91. If all process are I/O bounded then ----- will be empty

- a. Job queue
- b. Ready queue
- c. Device queue
- d. None of these

92. ----- is an passive entity

- a. Program
- b. Process
- c. PCB
- d. TLB

93. which one of the following is a visual way to determine the deadlock occurrence

- a. resource allocation graph
- b. starvation graph
- c. inversion graph

d. none of these.

94. A problem encounter in multitasking when a process is perpetually denied necessary resource is called

- a. Deadlock
- b. Starvation
- c. Inversion
- d. Aging

95. Which module gives control of the CPU to the process selected by short term scheduler

- a. Dispatcher
- b. Interrupt
- c. Scheduler
- d. None of the mention above

96. In multilevel feed back scheduling algorithm

- a. A process can move to a different classified ready queue
- b. Classification of ready queue is permanent
- c. Process are not classified in the group
- d. None of the above.

97. Dispatch latency is

- a. The speed of dispatching a process from running to ready state
- b. The time of dispatching a process from running to ready state and keeping the CPU idle
- c. The time to stop one process and start sunning another one
- d. None of the above

98. Waiting time:

- a. The total time in the blocked and waiting queue
- b. The total time spend in the ready queue
- c. The total time spend in the running queue

d. Total time spend in job queue

99. The process control block is:

- a. Process type variable
- b. Data structure
- c. A secondary storage location
- d. A block in main memory

100. When several process access the same data concurrently and the outcome of the execution depends on the particular order in which the access take place is called

- a. Dynamic condition
- b. Race condition
- c. Essential condition
- d. Critical condition

