KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE

GROUP SIX

OPERATING SYSTEMS (ASSIGNMENT FIVE)

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MULTIPLE CHOICE QUESTIONS

CHAPTER 1

1. In operating system, a software may trigger an interrupt executing a special operation it is called as?
A. System Call
B. Application Call
C. software Call
D. kernel call
E. user call

2. Job pool is program of operating system that is located in the
A. RAM
B. ROM
C. hard disk
D. CD
E. USB

3. Controller of computer system transfers data from device to
A. buffers
B. cache
C. registers
D. indexes
E. ROM

4. When many users access the same mainframe, this approach is called as
A. Resource allocation
B. Word processors
C. Dedicated resources
D. Interface
E. user interface

5. To start an I/O operation, device driver loads appropriate register into?
A. memory
B. Secondary storage
C. Device Controller
D. Arrays
E. Buffer

6. Process synchronization of programs is done by
A. Input

B. Output
C. Operating System
D. Memory
E. CPU

7. After fetching an instruction, computer
A. Store It
B. Decodes It
C. Execute It
D. Delete It
E. Encodes It

8. Dynamic random-access memory with battery backup is
A. RAM
B. NVRAM
C. VNRAM
D. NVROM
E. EEPROM

9. First process that is executed by operating system during booting is
A. Init
B. Initl
C. Mint
D. Start
E. Int

10. A software generated interrupt caused by an error during program execution is called?
A. A trap
B. A program
C. A process
d. A malware
E. A firmware

CHAPTER 2

11. Indicate which, of the following is not true about the interpreter
    A. Interpreter generates an object program form the source program
    B. Interpreter is a kind of translator
    C. Interpreter analyses each source statement every time it is to be executed
    D. All of the above

E. None of the above

12. One set of operation system service that ensure that a system must be able to load a program into memory and to run that program is called
    A. Program execution
    B. User interface
    C. Resource allocation
    D. Accounting
    E. None of the above

13. The following are types of application programmer interface except
    A. Java API
    B. POSIX API
    C. Windows
    D. Linux
    E. None of the above

14. The system related to process control, file management, device management, information about system and communication that is requested by any higher-level language can be performed by
    A. Editors
    B. Compilers
    C. System calls
    D. Caching
    E. None of the above

15. The form of interface that uses command and directives to control those commands are entered into files and those files are executed is known as
    A. Command line interpreter
    B. Graphical user interface
    C. Batch interface
    D. Windows
    E. None of the above

16. The MS-DOS operating system is an example of a
    A. Single-tasking system
    B. Multi-tasking system
    C. Dual-tasking system
    D. Algorithm-tasking system
    E. None of the above

17. The following are major categories of system calls, except
    A. Process control
    B. Device manipulation
    C. Communication
    D. Protection
    E. File management

18. In the case of Unix and Linux for programs in C language, the library is called
    A. Lib
    B. Bat
    C. Libc
    D. Init
    E. None of the above

19. Which of the following is an operation system service?
    A. Accounting
    B. Resource allocation
    C. User interface
    D. All of the above
    E. None of the above

20. On systems with multiple command interpreters to choose from, the interpreters are known as
    A. Shells
    B. Kernel
    C. Threads
    D. Multitasking
    E. All of the above

CHAPTER 3

21. What is the degree of multi programming
    A. Number of processes executed per unit time
    B. Number of processes in the ready queue
    C. Number of processes in the i/o queue
    D. Number of processes in memory

E. All of the above

22. The PCB is
    A. Process type variable
    B. Secondary storage section
    C. A block in memory
    D. Data structure
    E. None of the above

23. The entry of all the PCB of the current process is in
    A. Process register
    B. Program counter
    C. Process table
    D. Process unit
    E. All of the above

24. A single thread of control allows the process to perform
    A.one task at a time
    B. Multiple task at a time
    C. All of the above
    D. Two task at a time
    E. None of the above

25. The number of processes completed per unit time is
    A. Output
    B. Throughput
    C. Efficiency
    D. Capacity
    E. Input

26. A PCB does not contain
    A. Code
    B. Stack
    C. Heap
    D. Data
    E. Bootstrap program

27. Which of the following state transition is not possible?
    A. Blocked to running
    B. Ready to running

C. Blocked to ready
D. Running to blocked
E. None of the above

28. Scheduling of threads are done by the
    A. Input
    B. Output
    C. Operating system
    D. Memory
    E. Scheduler

29. When a process terminates
    A. Removed from all queues
    B. Removed from all but job queue
    C. It's pcb is deallocated
    D. It's pcb is not de allocated
    E. A and c

30. 10. In a time-sharing OS, when the time slot of a process is completed, the process goes from the running state to the
    A. blocked
    B. ready
    C. suspended
    D. terminated state
    E. all of the above

CHAPTER 4

31. Which one of the following is not shared by threads?
    A. Program counter
    B. Stack
    C. Both (a) and (b)
    D. None of the mention
    E. (b) only

32. A process can be
    A. Single threaded
    B. Multithreaded
    C. Both (a) and (b)

D. None of the mentor
E. All the above

33. If one thread opens a file with read privileges then
A. Other threads in another process can also read from that file
B. Other threads in the same process can also read from that file
C. Any other thread cannot read from that file
D. All the above
E. None of the above

34. The time required to create a new thread in an existing process is
A. Greater than the time required to create a new process
B. Less than the time required to create a new process
C. Equal to the time required to create a new process
D. None of the mentioned
E. All the above

35. When the event for which a thread is blocked occurs,
A. Thread moves to the ready queue
B. Thread remains blocked
C. Thread completes
D. A new thread is provided
E. (a) and (d) only

36. The jacketing technique is used to
A. Convert a blocking system call into nonblocking system call
B. Create a new thread
C. Communicates between threads
D. Terminate a thread
E. All the above

37. Termination of the process terminates
A. First thread of the process
B. First two threads of the process
C. All threads within the process
D. No thread within the process
E. All threads outside the process

38. Which one of the following is not a valid state of a thread?
A. Running

B. Parsing
C. Ready
D. Blocked
E. All the above

39. The register context and stacks of a thread are deallocated when the thread
    A. Terminates
    B. Blocks
    C. Unblocks
    D. Spawns
    E. (a) and (b)

40. Thread synchronization is required because
    A. All threads of a process share the same address space
    B. All threads of a process share the same global variables
    C. All threads of a process can share the same files
    D. All of the mentioned
    E. (a) and (c) only

CHAPTER 5

41. A solution to the critical-section problem must satisfy the following three requirements
    A. Mutual exclusion, progress and bounded waiting
    B. Mutual exclusion, Mutex locks and bounded waiting
    C. Mutex locks, progress and semaphore
    D. Mutex locks, monitor and bounded waiting
    E. Mutual exclusion, progress and monitor.

42. A scheduling problem in which a lower-priority process holds a lock needed by higher-priority process is termed as
    A. Deadlock
    B. Priority inversion
    C. Semaphore
    D. Mutex
    E. First Come First Serve (FCFS)

43. Which solution to critical section problem uses the methods acquire **()** and **release ()**
    A. Deadlock
    B. Priority inversion
    C. Peterson's solution

D. Monitor
E. Mutex Lock

44. If no process is executing in its critical section and there exist some processes that wish to enter their critical section, then the selection of the processes that will enter the critical section next is dependent on those …….
    A. In their critical section
    B. Not in their remainder section
    C. In their remainder section
    D. Not in their exit section
    E. In their entry section

45. A set of compiler directives and API that support parallel programming is.
    A. Transaction memory
    B. RAM
    C. Functional Programming Languages
    D. OpenMP
    E. Cache

46. A **……** is a sequence of read-write operations to memory that are performed atomically.
    A. Transaction memory
    B. RAM
    C. Functional Programming Languages
    D. OpenMP
    E. Cache.

47. A high-level abstraction that provides a convenient and effective mechanism for process synchronization is
    A. Semaphore
    B. Peterson's solution
    C. Monitor
    D. Swap
    E. Exception

48. All the following are solutions to the critical section problem except
    A. Semaphore
    B. Peterson's solution
    C. Mutex Lock
    D. Swap

E. Deadlock

49. A situation in which two or more processes sharing the same resources are effectively preventing each other from accessing the resource, thereby resulting in both processes seizing to function is termed
    A. Semaphore
    B. Peterson's solution
    C. Monitor
    D. Mutex Lock
    E. Deadlock

50. Which solution to critical section problem uses the methods **wait ()** and **signal ()**
    A. Mutex Lock
    B. Semaphore
    C. Monitor
    D. Peterson's solution
    E. Deadlock

CHAPTER 6

51. A system with …… and …… response time may be considered more desirable than a system that is faster on the average but is highly variable.
    A. Reasonable and predictable
    B. Good and Reasonable
    C. Faster and Good
    D. Reliable and faster
    E. None of the above

52. A ……. Scheduling algorithm partitions the ready queue into several separate queue.
    A. Multilevel queue
    B. Thread
    C. CPU
    D. Preemptive
    E. All the above

53. The ……. Scheduling algorithm, in contrast, allows a process to move between queues.
    A. Multilevel feedback Queue
    B. Complex feedback queue
    C. One level queue
    D. Thread queue

E. (a) and (b)

54. The content of a cache memory must be invalidated for the first processor, and the cache for the second processor must be repopulated. This process is known as……
    A. Processor Affinity
    B. Soft Affinity
    C. Hard Affinity
    D. Load balancing
    E. None of the above

55. The situation were the processor spend a significant amount of time waiting for the data to become available after accessing the memory is called?
    A. Memory stall
    B. Multi core processing
    C. Load balancing
    D. Processor Affinity
    E. None of the above

56. The amount of time that elapses from when an event occurs to when it is serviced is called?
    A. Event Latency
    B. Real-time latency
    C. Admission control
    D. Latency
    E. (a) and (c)

57. Scheduling in the Linux system is based on
    A. Scheduling classes
    B. Virtual run time
    C. Event latency
    D. Kernel
    E. All the above

58. If no ready thread is found the dispatcher will execute a special thread
    A. Idle thread
    B. Priority thread
    C. Normal thread
    D. Lowest thread
    E. No thread will be executed

59. The dispatcher use ……. to determine the order of thread execution.

A. 32-level scheme
B. Variable class
C. Idle thread
D. Initial priority
E. (a) and (d) only

60. Knowing arrival rates and servicing rates, we can compute utilization, average queue length, average wait time and so on. This area of study is called?
A. Queueing-Network Analysis
B. Queueing analysis
C. Network analysis
D. Simulation analysis
E. None of the above

CHAPTER 7

61. All the following can cause deadlock except
A. Mutual exclusion
B. Hold and wait
C. Total exclusion
D. No pre-emption
E. Circular wait

62. If a system is in a safe place then ……..
A. Deadlock is overcome
B. There is no deadlock
C. Deadlock is detected
D. Deadlock is minimized
E. The system runs smoothly

63. If a system is in an unsafe place then ……..
A. There is a possibility of deadlock
B. There is Dreadlock
C. The system runs smoothly
D. The system runs roughly
E. Overheating

64. A state is safe if……
A. The system can allocate resources to each process (up to its maximum) in some order and still avoid a deadlock

B. The system can allocate resources to some processes (up to its maximum) in some order and still avoid a deadlock
C. If it can protect processes
D. It can schedule processes
E. It can update processes

65. Which of the following situation must hold for a deadlock to occur?
A. Mutual exclusion
B. Hold and wait
C. No preemption
D. Circular wait
E. All the above

66. If pre-emption is required to deal with deadlocks, then these issues need to be addressed except
A. Starvation
B. Rollback
C. Rollover
D. Selecting a victim
E. None of the above

67. All these are methods are used in dealing with deadlock except
A. Use some protocol to prevent or avoid deadlocks, ensuring that the system will never enter a deadlocked state.
B. Allow the system to enter a deadlocked state, detect it, and then recover.
C. Ignore the problem altogether and pretend that deadlocks never occur in the system.
D. Allow system to detect and rollover deadlock
E. All the above

68. A system has 3 processes sharing 4 resources. If each process requires a maximum of 2 units then, deadlock
A. Can never occur
B. May occur
C. Has to occur
D. May or may not occur
E. None of these

69. The circular wait condition can be prevented by
A. Using threads
B. Using pipes

C. Defining a linear ordering of resource types
D. Using loops
E. Defining a non-linear ordering of resource types

70. Which of the following is the deadlock avoidance algorithm?
A. Bankers' algorithm
B. Karn's algorithm
C. Krak's algorithm
D. Elevator algorithm
E. Round Robin algorithm

CHAPTER 8

71. If the process can be moved during its execution from one memory segment to another, then binding must be:
A. Delayed until run time
B. All the above
C. Preponed to compile time
D. Preponed to load time
E. None of these

72. The _____ swaps processes in and out of the memory.
A. Memory manager
B. CPU
C. CPU manager
D. User
E. All the above

73. If a higher priority process arrives and wants service, the memory manager can swap out the lower priority process to execute the higher priority process. When the higher priority process finishes, the lower priority process is swapped back in and continues execution. This variant of swapping is sometimes called:
A. Priority swapping
B. Pull out, push in
C. Roll out, roll in
D. None of these
E. All the above

74. The address generated by the CPU is referred to as:
A. Physical address

B. Logical address
C. Neither a nor b
D. (a) only
E. (b) only

75. The base register is also known as the:
A. Basic register
B. Regular register
C. Relocation registers
D. De-location register
E. None of the above

76. Physical memory is broken into fixed-sized blocks called _____.
A. Frames
B. Pages
C. Backing store
D. None of these
E. All the above

77. With paging there is no _____ fragmentation.
A. Internal
B. External
C. Either type of
D. None of these
E. All the above

78. The main memory accommodates:
A. Operating system
B. CPU
C. User processes
D. All of these
E. None of these

79. The operating system is:
A. In the low memory
B. In the high memory
C. Either a or b (depending on the location of interrupt vector
D. None of these
E. (a) and (c)

80. A memory buffer used to accommodate a speed differential is called
    A. Stack pointer
    B. Cache
    C. Accumulator
    D. Disk buffer
    E. None of the above

CHAPTER 9

81. Because of virtual memory, the memory can be shared among
    A. Processes
    B. Threads
    C. Instructions
    D. (a) and (c)
    E. None of the above

82. _____ is the concept in which a process is copied into main memory from the secondary memory according to the requirement.
    A. Paging
    B. Demand Paging
    C. Segmentation
    D. Swapping
    E. None of the above

83. Swap space exists in
    A. Primary memory
    B. Secondary memory
    C. CPU
    D. All the above
    E. None of the above

84. When a program tries to access a page that is mapped in address space but not loaded in physical memory, then
    A. Segmentation fault occurs
    B. Fatal error occurs
    C. Page fault occurs
    D. No error occurs
    E. All the above

85. Effective access time is directly proportional to
    A. Page-fault rate
    B. Hit ratio

C. (a) and (b)
D. Memory access time
E. None of the mentioned

86. In FIFO page replacement algorithm, when a page must be replaced
A. Oldest page is chosen
B. Newest page is chosen
C. Random page is chosen
D. All the above
E. None of the above

87. Which algorithm chooses the page that has not been used for the longest period of time whenever the page required to be replaced?
A. First in first out algorithm
B. Additional reference bit algorithm
C. Least recently used algorithm
D. Counting based replacement
E. None of the above

88. A process is thrashing if
A. it is spending more time paging than executing
B. it is spending less time paging than executing
C. page fault occurs
D. swapping cannot take place
E. none of the above

89. Working set model for page replacement is based on the assumption of
A. Modularity
B. Locality
C. Globalization
D. Random access
E. (b) and (c)

90. Demand paged memory allocation
a) allows the virtual address space to be independent of the physical memory
b) allows the virtual address space to be a multiple of the physical memory size
c) allows deadlock to be detected in paging schemes
d) is present only in Windows NT
e) All the above

CHAPTER 10

91. Which of the following disk seek algorithm would be the best choice to implement in a system that services an average of 5 disk requests per second?

A. First Come First Served
B. Shortest Seek Time First
C. SCAN
D. C-SCAN
E. (a) and (b)

92. ---------- is the time necessary for the desired sector to rotate to the disk head.

A. Rotational latency
B. Head time
C. RPM
D. Transfer rate
E. None of the above

93. Which of the following disk seek algorithms has the most variability in response time?

A. First Come First Served
B. Shortest Seek Time First
C. SCAN
D. C-SCAN
E. All the above

94. RAID is a way to:

A. Increase hard drive latency and performance.
B. Increase hard drive performance and decrease cost.
C. Increase hard drive reliability and performance.
D. Increase hard drive reliability and decrease cost.
E. (a) and (c)

95. Which of the following is not true of a file system allocation table (FAT)?

A. A bitmap is used to track free blocks.
B. Index nodes (inodes) are unnecessary.
C. File size is limited only by the amount of free space.
D. Block n of a file can be read without first reading blocks 0 through n-1.
E. All of the above

96. A hot spare is not used for data but is configured to be used as a replacement in case of disk failure.

A. True

B. False
C. Maybe
D. None of the above
E. All of the above

97. Which RAID level is referred to as mirroring
A. 0
B. 1
C. 2
D. 3
E. 5

98. The type of memories used in MP3 players and cameras are called:
A. Memory database
B. Flash memories
C. Mass Storage
D. Main memory
E. None of the above

99. Which RAID level is referred to as memory-style error-correcting code (ECC) organization
A. 0
B. 1
C. 2
D. 3
E. 4

100. Before it can use a disk to hold files, the operating system still needs to record its own data structures on the disk. It does so in two steps. The first step is to ----------?
A. Partition
B. Formatting
C. Merge
D. Logical Formatting
E. Not sure