Solved Exams

Monday, January 8, 2024 1:55 PM

midterm

CS506 **Mid-term exam** **model (B)** **20-11-2022**

Question one: Choose the best answer for each of the following

1) A suspended process is characterized by ……

a) is not in the main memory. **b)** may or may not be waiting for an event. **c)** all of the above.

2) …… is called the dispatcher.

a) The long-term scheduler **b)** The short-term scheduler **c)**None of the above

3) The Not Running state had to split into…….. states.

a) new &ready **b)** new & exit **c)** blocked & ready **d)**None of the above

4) The data relating to the process having the exit state, ……..

a) are temporarily preserved by the OS. **b)** the OS no longer needs to maintain them. **c)**none of the above.

5) The process consists of……..

a) the process control block. **b)** associated data. **c)** program code. **d)**all of the above.

6) A single suspend state model allows …… to be swapped out.

a) blocked processes only **b)** blocked and ready processes **c)** none of the above

7) It is efficient to have ……

a) a number of blocked queues. **b)** one blocked queue. **c)**none of the above.

Question two: Put (√) or (X) with (correcting the wrong one)

8) Interrupts increase the processor utilization.

9) The main memory stores data and instructions and it keeps its contents after shutting down the computer. (volatile)

10) The memory buffer register contains the data to be written into the memory or the data read from the memory.

11) I/O modules contain internal buffers for permanently holding the data.

12) In the SoC, the CPUs and caches only are on the same chip.

13) The memory address register contains the fetched instruction. (IR Register)

14) The next (last) process is the process that is prepared to be executed given the opportunity and is in the main memory.

15) In Symmetric Multiprocessors machines, the failure of a single processor halts the machine.

16) The OS must provide a response that clears the error condition with the most (least) impact on the running applications.

17) Multi-Core Computers combine 2 or more processors on separate (same) chips.

18) The programmer (OS) does the scheduling duties for executing the programs.

19) The ABI is used by the programmers (OS (compiler)) to access the HW resources and the OS services. (ABI: Application Binary interface)

20) Paging systems allow processes to be comprised of a number of variable-size (fixed) pages.

21) All the pages of a process must reside in the main memory concurrently.

22) Programs should be dynamically allocated across the memory as required

23) A good OS will collect usage statistics for various resources and monitor the performance parameters.

24) The program (PC) counter register holds the address of the next instruction to be fetched.

25) Graphical Processing Units are used for advanced graphics and for general numerical processing.

26) The OS maintains an I/O queue for each I/O device.

27) Traditionally, every personal computer runs many OSs at a time.

28) Over time, the processor is switched between various processes.

29) The process control block is the key tool that enables the OS to support multiple processes.

30) Confidentiality assures that users can't read data for which access is unauthorized.

506 s 1

Cairo University	Cairo University – Faculty of Graduate Studies for Statistical Research			
	Department: Computer sciences			
	Academic Year: 2	**Semester:** 1		
	Date: 1-2-2022	**Level:** Diploma		
Course Title: Operating Systems	**Course code:** CS506	**Time:** 2 Hours	**Exam marks:** 75	**Exam Sheets:** 2

Model (A)

Question one: Choose the best answer for each of the following

1) With ....., memory compaction must be done more frequently than with the other algorithms.
a) the best-fit **b)** the first-fit **c)** the next-fit **d)** none of the above

2) A threads library contains code for.....
a) creating threads. **b)** destroying threads. **c)** scheduling threads. **d)** all of the above.

3) User programs are typically executed in .....
a) the user mode. **b)** the kernel mode. **c)** the system mode. **d)** none of the above.

4) The process consists of.....
a) program code. **b)** associated data. **c)** the process control block. **d)** all of the above.

5) ..... means no resource can be forcibly removed from a process holding it.
a) Circular Wait **b)** Hold & Wait **c)** No Preemption **d)** None of the above

6) ..... is an example of reusable resources.
a) The processor **b)** Information in I/O buffers **c)** A signal **d)** None of the above

7) ..... is a device that detects and responds to some type of input from the physical environment.
a) The modem **b)** The sensor **c)** The mouse **d)**None of the above

8) ..... is the amount of the time spent executing between I/O operations.
a) The service time **b)** The processor burst **c)** The turnaround time **d)** None of the above

9) With the use of ....., the processor is involved only at the beginning and end of the data transfer.
a) Direct Memory Access(DMA) b) I/O bus **c)** I/O module **d)** none of the above

10) The Not Running state should be split into .....
a) Ready and New. **b)** Ready and Blocked. **c)** New and Blocked. **d)**none of the above.

11) ..... is an example of single-threaded approaches.
a) MS-DOS **b)** Windows **c)** Solaris **d)**None of the above

12) Interrupts are handled at ..... layer.
a) logical I/O **b)** device I/O **c)** scheduling and control **d)** none of the above

13) In ....., the process with the shortest expected processing time is selected next.
a) the shortest process next **b)** the shortest remaining time **c)** feedback scheduling **d)**none of the above

14) A selection criteria for aborting deadlocked processes can be choosing the process with the ..... .
a) lowest priority. **b)** least estimated time remained. **c)**most total resources allocated so far. **d)**all of the above.

15) In an OS that supports threads, scheduling and dispatching is done on .....
a) a process basis. **b)** a thread basis. **c)** all of the above. **d)**none of the above.

16) Customer Relationship Management is an example of .....
a) multi-threaded applications. **b)** multi-process applications. **c)** all of the above. **d)**None of the above.

17) A suspended process is characterized by .....
a) isn't in the main memory. **b)** may or may not be awaiting an event. **c)** all of the above. **d)** none of the above.

Question Two: in your bubble sheet, shade ظلل A completely if the sentence is correct and B if it is wrong

18) Starvation (deadlock) is a permanent blocking of a set of processes that compete for resources or communicate with each other. ✗

19) The suspension of a process suspends all of the threads within this process. ✓

20) The dispatcher (Kernal) is the portion of the OS that includes the important system functions. ✗

21) With equal-size fixed partitioning, a process whose size is >= (<=) the partition size can be loaded into any available partition. ✗

22) In a multiple-processor system, it is not possible to interleave the execution of multiple processes. ✗

23) With using interrupts, the processor does not spend time waiting for an I/O operation to be performed. ✓

24) Deadlock can be detected (Prevention) by adopting a policy that eliminates one of its conditions. ✗

25) The critical section is the portion of the program that uses a critical resource. ✓

26) The kernel (dispatcher) is a small program that switches the processor from one process to another. ✗

27) Asynchronous elements in a program can be implemented as threads. ✓

28) The page table contains the frame location for each page in the process. ✓

29) The semWaitB checks the semaphore value. If it is one (zero), then the process executing it will be blocked. ✗

30) Pre-emptive policies provide better service to the total population of processes than non pre-emptive ones. ✓

31) In a pure priority scheduling scheme, there are multiple ready queues in descending order of priority. ✓

32) A process in the Ready state is moved to the Blocked state when the event for which it was waiting occurs. ✗ (suspind)

33) With the Round Robin algorithm, very long time slice should not be used. ✓

34) The process control block is the key tool that enables the OS to support multiple processes. ✓

35) Mutual exclusion is the ability to exclude all other processes from a course of action while a process is granted that ability. ✓

36) Processor bound process (I/O bound) is the process that mostly uses the I/O devices. ✗

37) There is no external fragmentation with paging. ✓

38) Internal fragmentation is the used (wasted) space internal to a partition. ✗

39) It is efficient to have a number of blocked queues; one for each event. ✓

40) A single suspend state only allows processes which are blocked to be swapped out. ✓

Best Wishes **Dr. Nadia Abd-Alsabour** **Page 2 of 2**

3 Exams

Academic Year: 2 **Semester: Summer** **Date: 18-9-2023**

Question one: Choose the best answer for each of the following

1) ..... is an example of consumable resources.
a) The processor b) Information in I/O buffers c) The secondary memory d) None of the above

2) With the use of ....., the processor is involved only at the beginning and end of the data transfer.
a) I/O module b) I/O bus c) Direct Memory Access d) none of the above

3) Certain instructions of the OS are executed in .....
a) the user mode. b) the kernel mode. c) the control mode. d) none of the above.

4) ..... is a device that detects and responds to some type of input from the physical environment.
a) The sensor b) The modem c) The mouse d)None of the above

5) The Not Running state should be split into .....
a) Ready and Blocked. b) Ready and New. c) New and Blocked. d) none of the above.

6) The semaphore that specifies the order in which processes are removed from the queue is called .....
a) a weak semaphore. b) a strong semaphore. c) a binary semaphore. d) none of the above

7) ..... is an example of single-threaded approaches.
a) MS-DOS b) Windows c) Solaris d) None of the above

8) ..... is the management of multiple processes within a multiprocessor system.
a) Multiprogramming b) Multiprocessing c) Distributed processing d) None of the above

9) ..... is the amount of the time spent executing between I/O operations.
a) The service time b) The processor burst c) The turnaround time d) None of the above

10) A threads library contains code for.....
a) creating threads. b) destroying threads. c) scheduling threads. d) all of the above.

11) A process can be terminated because of .....
a) a user action. b) errors. c) parent process is terminated. d) all of the above.

12) The process consists of.....
a) program code. b) associated data. c) the process control block. d) all of the above.

13) ..... is an example of human readable devices.
a) A controller b) A printer c) USB d)None of the above

14) Interrupts are handled at ..... layer.
a) logical I/O b) device I/O c) scheduling and control d) none of the above

15) With ....., dynamic priority mechanism is used.
a) feedback scheduling b) pure priority scheduling c) virtual round robin d) none of the above

16) A selection criteria for aborting deadlocked processes can be choosing the process with the ..... .
a) lowest priority. b) least estimated time remained. c) most total resources allocated so far. d)all of the above.

17) In ....., the process with the shortest expected processing time is selected next.
a) the shortest remaining time b) the shortest process next c) feedback scheduling d)none of the above

18) Customer Relationship Management is an example of .....
a) multi-process applications. b) multi-threaded applications. c) all of the above. d) None of the above.

19) ..... means no resource can be forcibly removed from a process holding it.
a) No Preemption b) Hold & Wait c) Circular Wait d) None of the above

20) With ....., memory compaction must be done more frequently than with the other algorithms.
a) the best-fit b) the first-fit c) the next-fit d) none of the above
21) A suspended process is characterized by .....
a) isn't in the main memory. b) may or may not be awaiting an event. c) all of the above. d) none of the above.
22) In an OS that supports threads, scheduling and dispatching is done on .....
a) a process basis. b) a thread basis. c) all of the above. d) none of the above

Question Two: in your bubble sheet, shade **A** completely if the sentence is correct and **B** if it is wrong
23. User-Level Threads (ULTs) can run on any OS.
24. Using segmentation, a program and its associated data are divided into fixed-size segments.
25. The OS must allocate and de-allocate various resources for each active process.
26. Many processes are allowed to enter their critical section at a time.
27. In unequal-size partitioning, it is efficient to use a single queue for all partitions.
28. Nowadays, more and more of the I/O function are performed without the central processor involvement.
29. The dispatcher is a small program that switches the processor from one process to another.
30. Scheduling is managing queues to maximize the queuing delay, and optimize the performance.
31. Synchronization is coordinating multiple concurrent activities of multiple processes that are using a common resource.
32. In a virtual round robin, processes in the auxiliary queue get preference over processes in the main ready queue.
33. The semWaitB checks the semaphore value. If it is one, then the process executing it will be blocked.
34. A process is starved when it is indefinitely denied access to a resource.
35. The exchange of data between the DMA and the I/O modules takes place through the system bus.
36. First-come-first-served tends to favor I/O-bound processes over processor-bound processes.
37. At the File System layer, access rights are managed.
38. A single suspend state only allows processes which are blocked to be swapped out.
39. Internal fragmentation is the wasted space internal to a partition.
40. Processor bound process is the process that mostly uses the I/O devices.
41. Mutual exclusion means exclude all other processes from a course of action while a process is granted this ability.
42. Non pre-emptive policies provide better service to the total population of processes than Pre-emptive ones.
43. Asynchronous elements in a program can be implemented as threads.
44. It is not efficient to have a number of blocked queues; one for each event.
45. Using controllers, the processor is responsible for the specifics of interfacing with external devices.
46. With paging, the internal fragment contains only a fraction of the last page of the process.
47. Deadlock can be detected by adopting a policy that eliminates one of its conditions.
48. A process in the Blocked state is moved to the Ready state when the event for which it was waiting occurs.
49. In a multiple-processor system, it is not possible to interleave the execution of multiple processes.
50. The page table contains the frame location for every page in the process.
51. In a pure priority scheduling scheme, there are multiple ready queues in descending order of priority.

52. A deadlock is a temporary blocking of a group of processes competing for resources or communicating with each other.

53. The process control block is the key tool that enables the OS to support multiple processes.

54. With using interrupts, the processor does not spend time waiting for an I/O operation to be performed.

55. The critical section is the portion of the program that uses the critical resource.

56. With equal-size fixed partitioning, a process whose size is >= the partition size can be loaded into any available partition.

57. The suspension of a process suspends all of the threads within this process.

58. There is a deadlock in this diagram.

59. With the Round Robin algorithm, very long time slice is not recommended.

60. The processor is the portion of the OS that includes the important system functions

Academic Year: 2 **Semester: Summer** **Date: 28-9-2022**

Question one: Choose the best answer for each of the following

1) A major OS will evolve over time because of .....

a) HW upgrades. b) new Services. c) fixing its faults. d) all of the above.

2) Customer Relationship Management is an example of .....

a) multi-process applications. b) multi-threaded applications. c) all of the above. d) None of the above.

3) The Not Running state should be split into .....

a) Ready and Blocked. b) Ready and New. c) New and Blocked. d) none of the above.

4) A suspended process is characterized by .....

a) isn't in the main memory. b) may or may not be awaiting an event. c) all of the above. d) none of the above.

5) In an OS that supports threads, scheduling and dispatching is done on .....

a) a process basis. b) a thread basis. c) all of the above. d) none of the above.

6) ..... is an example of reusable resources.

a) The processor b) Information in I/O buffers c) A signal d) None of the above

7) ..... is referred to as real memory.

a) Virtual memory b) Secondary memory c) Main memory d) None of the above

8) ..... is an example of single-threaded approaches.

a) MS-DOS b) Windows c) Solaris d) None of the above

9) ..... is the management of multiple processes within a multiprocessor system.

a) Multiprocessing b) Multiprogramming c) Distributed processing d) None of the above

10) The process consists of.....

a) program code. b) associated data. c) the process control block. d) all of the above.

11) With ....., memory compaction must be done more frequently than with the other algorithms.

a) the best-fit b) the first-fit c) the next-fit d) none of the above

12) ..... means no resource can be forcibly removed from a process holding it.

a) No Preemption b) Hold & Wait c) Circular Wait d) None of the above

13) A threads library contains code for.....

a) creating threads. b) destroying threads. c) scheduling threads. d) all of the above.

14) User programs are typically executed in .....

a) the user mode. b) the kernel mode. c) the system mode. d) none of the above.

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15) A selection criteria for aborting deadlocked processes can be choosing the process with the ..... .
a) lowest priority. b) least estimated time remained. c) most total resources allocated so far. d)all of the above.
16) Traditionally, every personal computer (PC) would run .....
a) only one OS at a time. b) many operating systems at a time. c) none of the above.
17) ..... is a list of new processes waiting to use the processor.
a) The long-term queue b) The short-term queue c) None of the above

Question Two: in your bubble sheet, shade **A** completely if the sentence is correct and **B** if it is wrong
18) The dispatcher is a small program that switches the processor from one process to another.
19) The semWaitB checks the semaphore value. If it is one, then the process executing it will be blocked.
20)In SoC, not only the CPUs are on the same chip but also other componentslike I/O modules&themain memory.
21)Mutual exclusion means exclude all other processes from a course of action while a process granted this ability.
22) Internal fragmentation is the used space internal to a partition.
23) With the Round Robin algorithm, very long time slice should be avoided.
24) With using interrupts, the processor spends time waiting for an I/O operation to be performed.
25) It is efficient to have a number of blocked queues; one for each event.
26) A single suspend state only allows processes which are blocked to be swapped out.
27) Synchronous elements in a program can be implemented as threads.
28) The processor controls the operations of the computer and performs its data processing functions.
29) The page table contains the frame location for each page in the process.
30) In a multiple-processor system, it is possible to interleave the execution of multiple processes.
31) There is no external fragmentation with paging.
32) A process in the Ready state is moved to the Blocked state when the event for which it was waiting occurs.
33) The process control block is the key tool that enables the OS to support multiple processes.
34) Deadlock can be prevented by adopting a policy that eliminates one of its conditions.
35) Starvation is a permanent blocking of processes that compete for resources or communicate with each other.
36) The suspension of a process does not suspend all the threads within this process.
37) The critical section is the portion of the program that uses the critical resource.
38)In equal-size fixed partitioning, process whose size is<= the partition size can be loaded into any available partition
39) Multi-Core Computers combine 2 or more processors on a single piece of silicon.
40) The kernel is the portion of the OS that includes the important system functions.

Academic Year: 2 **Semester: 1** **Date: 1-2-2022**

Model (A)

Question one: Choose the best answer for each of the following

1) With ....., memory compaction must be done more frequently than with the other algorithms.
a) the best-fit b) the first-fit c) the next-fit d) none of the above

2) A threads library contains code for.....
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5) ..... means no resource can be forcibly removed from a process holding it.
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6) ..... is an example of reusable resources.
a) The processor b) Information in I/O buffers c) A signal d) None of the above

7) ..... is a device that detects and responds to some type of input from the physical environment.
a) The modem b) The sensor c) The mouse d)None of the above

8) ..... is the amount of the time spent executing between I/O operations.
a) The service time b) The processor burst c) The turnaround time d) None of the above

9) With the use of ....., the processor is involved only at the beginning and end of the data transfer.
a) Direct Memory Access(DMA) b) I/O bus c) I/O module d) none of the above

10) The Not Running state should be split into .....
a) Ready and New. b) Ready and Blocked. c) New and Blocked. d)none of the above.

11) ..... is an example of single-threaded approaches.
a) MS-DOS b) Windows c) Solaris d)None of the above

12) Interrupts are handled at ..... layer.
a) logical I/O b) device I/O c) scheduling and control d) none of the above

13) In ....., the process with the shortest expected processing time is selected next.
a) the shortest process next b) the shortest remaining time c) feedback scheduling d)none of the above

14) A selection criteria for aborting deadlocked processes can be choosing the process with the ..... .
a)lowest priority. b)least estimated time remained. c)most total resources allocated so far. d)all of the above.

15) In an OS that supports threads, scheduling and dispatching is done on .....
a) a process basis. b) a thread basis. c) all of the above. d)none of the above.

16) Customer Relationship Management is an example of .....
a) multi-threaded applications. b) multi-process applications. c) all of the above. d)None of the above.

17) A suspended process is characterized by .....
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Question Two: in your bubble sheet, shade **A** completely if the sentence is correct and **B** if it is wrong

18) Starvation is a permanent blocking of a set of processes that compete for resources or communicate with each other.
19) The suspension of a process suspends all of the threads within this process.
20) The dispatcher is the portion of the OS that includes the important system functions.
21) With equal-size fixed partitioning, a process whose size is >= the partition size can be loaded into any available partition.
22) In a multiple-processor system, it is not possible to interleave the execution of multiple processes.
23) With using interrupts, the processor does not spend time waiting for an I/O operation to be performed.
24) Deadlock can be detected by adopting a policy that eliminates one of its conditions.
25) The critical section is the portion of the program that uses a critical resource.
26) The kernel is a small program that switches the processor from one process to another.
27) Asynchronous elements in a program can be implemented as threads.
28) The page table contains the frame location for each page in the process.
29) The semWaitB checks the semaphore value. If it is one, then the process executing it will be blocked.
30) Pre-emptive policies provide better service to the total population of processes than non pre-emptive ones.
31) In a pure priority scheduling scheme, there are multiple ready queues in descending order of priority.
32) A process in the Ready state is moved to the Blocked state when the event for which it was waiting occurs.
33) With the Round Robin algorithm, very long time slice should not be used.
34) The process control block is the key tool that enables the OS to support multiple processes.
35) Mutual exclusion is the ability to exclude all other processes from a course of action while a process is granted that ability.
36) Processor bound process is the process that mostly uses the I/O devices.
37) There is no external fragmentation with paging.
38) Internal fragmentation is the used space internal to a partition.
39) It is efficient to have a number of blocked queues; one for each event.
40) A single suspend state only allows processes which are blocked to be swapped out.