نظم التشغيل
12:2
الخميس 24/6/2021
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Faculty of Computers & Information, Assiut University
3rd Level
Final Exam
Duration: 2 hours

* Required

* This form will record your name, please fill your name.

1

* الإسم الرباعي (بالعربي فقط)

2

* رقم الجلوس

3

* المستوي

- الاول
- الثاني
- الثالث
- رابعة 2013
- رابعة 2014
- رابعة 2015
- رابعة 2016
- رابعة 2017

4

* البرنامج

- عام
- بايو
- هندسة

5

* رقم المعمل

- ج٠
- د٠
- اب
- اد
- اهـ
- أ٢
- ب٢
- ج٢
- د٢
- هـ٢
- أ٣
- ب٣
- ج٣
- د٣
- هـ٣
- أ٤
- ب٤

6

* رقم الكمبيوتر

7

* الكود (قد تمت مراجعة بيانات الطالب ورقم الجلوس)

8

In Operating Systems, which of the following is/are CPU scheduling algorithms?
(2 Points)

- Round Robin
- Shortest Job First
- Priority
- All of the mentioned

9

In operating system, each process has its own _____
(2 Points)

- address space and global variables
- open files
- pending alarms, signals, and signal handlers
- all of the mentioned

10

What is interprocess communication?
(2 Points)

- communication within the process
- communication between two processes
- communication between two threads of same process
- none of the mentioned

11

A set of processes is deadlock if _____
(2 Points)

- each process is blocked and will remain so forever
- each process is terminated
- all processes are trying to kill each other
- none of the mentioned

12

The number of processes completed per unit time is known as _____
(2 Points)

- Capacity
- Throughput
- Output
- Efficiency

13

What is the degree of multiprogramming?
(2 Points)

- the number of processes in the ready queue
- the number of processes in the I/O queue
- the number of processes executed per unit time
- the number of processes in memory

14

When the process issues an I/O request _____
(2 Points)

- It is placed in an I/O queue
- It is placed in a waiting queue
- It is placed in the Job queue
- It is placed in the ready queue

15

What is a long-term scheduler?
(2 Points)

- It selects processes which must be brought into the ready queue
- It selects processes which must be executed next and allocates CPU
- It selects processes which must be removed from memory by swapping
- None of the mentioned

16

What is a short-term scheduler?
(2 Points)

- It selects which process must be brought into the ready queue
- It selects which process must be executed next and allocates CPU
- It selects which process must be removed from memory by swapping
- None of the mentioned

17

Suppose that a process is in “Blocked” state waiting for some I/O service. When the service is completed, it goes to the _____
(2 Points)

- Suspended state
- Terminated state
- Running state
- Ready state

18

When several processes access the same data concurrently and the outcome of the execution depends on the order in which the access takes place is called _____
(2 Points)

- essential condition
- dynamic condition
- race condition
- critical condition

19

If a process is executing in its critical section, then no other processes can be executing in their critical section. What is this condition called?
(2 Points)

- mutual exclusion
- asynchronous exclusion
- synchronous exclusion
- critical exclusion

20

Which one of the following is a synchronization tool?
(2 Points)

- semaphore
- thread
- pipe
- socket

21

DMA is used for _____
(2 Points)

- High speed devices
- Low speed devices
- Utilizing CPU cycles
- All of the mentioned

22

The interval from the time of submission of a process to the time of completion is termed as _____
(2 Points)

- waiting time
- turnaround time
- response time
- throughput

23

Which algorithm is defined in Time quantum?
(2 Points)

- round robin scheduling algorithm
- priority scheduling algorithm
- multilevel queue scheduling algorithm
- shortest job scheduling algorithm

24

A process is selected from the _____ queue by the _____ scheduler, to be executed
(2 Points)

- ready, long term
- ready, short term
- blocked, short term
- wait, long term

25

What is Response time?
(2 Points)

- the total time taken from the submission time till the completion time
- the total time taken from the submission time till the first response is produced
- the total time taken from submission time till the response is output
- none of the mentioned

26

Round robin scheduling falls under the category of _____
(2 Points)

- Non-preemptive scheduling
- Preemptive scheduling
- All of the mentioned
- None of the mentioned

27

The real difficulty with SJF in short term scheduling is _____
(2 Points)

- it is too good an algorithm
- knowing the length of the next CPU request
- it is too complex to understand
- none of the mentioned

28

What is 'Aging'?
(2 Points)

- keeping track of what pages are currently residing in memory
- increasing the priority of jobs to ensure termination in a finite time
- keeping track of cache contents
- keeping track of how many times a given page is referenced

29

Which of the following scheduling algorithms gives minimum average waiting time?
(2 Points)

- SJF
- FCFS
- Round – robin
- Priority

30

Which of the following conditions must be satisfied to solve the critical section problem?
(2 Points)

- Mutual Exclusion
- Progress
- Bounded Waiting
- All of the mentioned

31

A binary semaphore is a semaphore with integer values _____
(2 Points)

- -2
- 2
- -1
- 1

32

A system is in a safe state only if there exists a _____
(2 Points)

- safe allocation
- safe resource
- safe sequence
- all of the mentioned

33

If no cycle exists in the resource allocation graph _____
(2 Points)

- then the system will not be in a safe state
- then the system will be in a safe state
- all of the mentioned
- none of the mentioned

34

The wait-for graph is a deadlock detection algorithm that is applicable when _____
(2 Points)

- all resources have a single instance
- all resources have multiple instances
- all resources have a single 7 multiple instances
- all of the mentioned

35

The address generated by the CPU is referred to as _____
(2 Points)

- Physical address
- Logical address
- Neither physical nor logical
- None of the mentioned

36

The run time mapping from virtual to physical addresses is done by a hardware device called the _____
(2 Points)

- Virtual to physical mapper
- Memory management unit
- Memory mapping unit
- None of the mentioned

37

Program always deals with _____
(2 Points)

- absolute address
- physical address
- logical address
- relative address

38

What is compaction?
(2 Points)

- a paging technique
- a technique for overcoming fatal error
- a technique for overcoming internal fragmentation
- a technique for overcoming external fragmentation

39

In contiguous memory allocation _____
(2 Points)

- each process is contained in a single contiguous section of memory
- all processes are contained in a single contiguous section of memory
- the memory space is contiguous
- none of the mentioned

40

The first fit, best fit and worst fit are strategies to select a _____
(2 Points)

- process from a queue to put in memory
- processor to run the next process
- free hole from a set of available holes
- all of the mentioned

41

In internal fragmentation, memory is internal to a partition and _____
(2 Points)

- is being used
- is not being used
- is always used
- none of the mentioned

42

_____ is generally faster than _____ and _____
(2 Points)

- first fit, best fit, worst fit
- best fit, first fit, worst fit
- worst fit, best fit, first fit
- none of the mentioned

43

Every address generated by the CPU is divided into two parts. They are _____
(2 Points)

- frame bit & page number
- page number & page offset
- page offset & frame bit
- frame offset & page offset

44

The offset ‘d’ of the logical address must be _____
(2 Points)

- between 0 and segment limit
- greater than the segment number
- greater than segment limit
- between 0 and the segment number

45

When high priority task is indirectly preempted by medium priority task effectively inverting the relative priority of the two tasks, the scenario is called _____
(2 Points)

- priority exchange
- priority inversion
- priority removal
- priority modification

46

Which of the following scheduling policy is well suited for a time-shared operating system?
(2 Points)

- Round robin
- Elevator
- Shortest job first
- FCFS

47

Assuming the above process being scheduled with the SJF scheduling algorithm (non-preemptive). The waiting time for process C is:
(2 Points)

Process	Arrival Time	Processing Time
A	0	4
B	1	5
C	2	4
D	3	2

- 2
- 4 correct
- 6
- 8
- None of the mentioned

48

Assume Quantum value two, given a RR scheduler, what is the response time of job B?
(2 Points)

Process	Arrival Time	Processing Time
A	0	4
B	1	5
C	2	4
D	3	2

- ○ 0
- ○ 1 correct
- ○ 2
- ○ 3
- ○ None of the mentioned

49

Given a FIFO scheduler, what is the average response time of the four jobs? (2 Points)

Process	Arrival Time	Processing Time
A	0	4
B	1	5
C	2	4
D	3	2

- ○ 4.5
- ○ 5 correct
- ○ 6.5
- ○ 8
- ○ None of the mentioned

50

Virtual memory is
(2 Points)

- a type of memory used in super computers
- an extremely large main memory
- an illusion of an extremely large memory
- an extremely large secondary memory

51

Necessary conditions for deadlock are
(2 Points)

- non-preemption and circular wait
- Mutual exclusion
- both (a) and (b)
- none of the above

52

The following system of four processes with two resources:
If the availability vector is [2 3], is the system above deadlocked?
(2 Points)

Current allocation matrix:	Current request matrix:
P_1 1 3	P_1 1 2
P_2 4 1	P_2 4 3
P_3 1 2	P_3 1 7
P_4 2 0	P_4 5 1

- ◯ Yes
- ◯ No

53

The following system of four processes with two resources:
If the availability vector is [2 5], is the system above deadlocked?
(2 Points)

Current allocation matrix:	Current request matrix:
P_1 1 3	P_1 1 2
P_2 4 1	P_2 4 3
P_3 1 2	P_3 1 7
P_4 2 0	P_4 5 1

- ◯ Yes
- ◯ No

54

A small computer has 3 page frames. A process makes the following list of page references: 1,2,3,4,2,1,5,6,7,6,3,2,1,2,3,6. How many page faults using FIFO algorithm?
(2 Points)

- 8
- 10
- 12
- 14
- None of the mentioned

55

A small computer has 3 page frames. A process makes the following list of page references: 1,2,3,4,2,1,5,6,7,6,3,2,1,2,3,6. How many page faults using least-recently-used (LRU) algorithm?
(2 Points)

- 8
- 10
- 12
- 14
- None of the mentioned

56

A small computer has 3 page frames. A process makes the following list of page references: 1,2,3,4,2,1,5,6,7,6,3,2,1,2,3,6. How many page faults using optimal page replacement algorithm?
(2 Points)

- 8
- 10
- 12
- 14
- None of the mentioned

57

If a physical address is 32 bits and each page is 32KB, the top ..... bits exactly designate the physical page number
(2 Points)

- 10
- 17
- 19
- 32