Operating systems INT2206 9 (2019-2020)

Started on	Monday, 1 June 2020, 9:00 PM
State	Finished
Completed on	Monday, 1 June 2020, 9:31 PM
Time taken	31 mins
Marks	20.00/20.00
Grade	**10.00** out of 10.00 (**100**%)

Question 1

Correct

Mark 1.00 out of 1.00

Flag question

Suppose a paging system has the page fault rate=0.3%; the memory access time is: 250 nano seconds; and the page fault handling time is: 7 milli seconds. How many times the performance is slowdown? (eg. 87).

Answer: 85

Question 2

Correct

Mark 1.00 out of 1.00

Flag question

A system does NOT use Translation Look-aside Buffer (TLB) for address translation in paging (1 level page table). Suppose the access time of the memory is 200ms; Which is the Effective Access Time (EAT) of the system?

Select one:

- 160 ms
- 200 ms
- 180 ms
- 400 ms ✓

Question 3

Correct

Mark 1.00 out of 1.00

Flag question

Suppose a system uses segmentation memory allocation. The content of the segment table (limit, base) of a process is [(1000, 1400), (400, 6300), (400, 4300), (1100, 3200), (1000, 4700)]. Calculate the physical address of the reference (3, 106) (e.g. a number or invalid)?

Answer: 3306

Question 4

Correct

Given the reference string: 1, 2, 3, 4, 1, 2, 5, 1, 2, 3, 4, 5. Suppose a system uses FIFO page replacement algorithm with 3 frames. Calculate the total page faults?

Mark 1.00 out of 1.00

Flag question

Answer: 9

Question 5

Correct

Mark 1.00 out of 1.00

Flag question

Suppose a system uses second chance page replacement algorithm with 6 frames. The values of the reference bits of the frames are 1 1 0 1 1 0. The current position of the pointer is at 2nd frame. When the page replacement is called, show the values of the reference bits (e.g. 1 1 0 1 1 0)?

Answer: 1 0 0 1 1 0

Question 6

Correct

Mark 1.00 out of 1.00

Flag question

Given the 1-level page table of a process as bellow, with the frame size=1KB.

	FRAME	VALID
0	1291	1
1	12	0
2	5	1
3	23	1
4	132	0

Calculate the physical address of the logical address 986? (e.g. 18932 or error)

Answer: 1322970

Question 7

Correct

Suppose a system uses paging (1 level page table), and the access time of memory is 200 ms. Calculate the time to access the memory from a reference (p,d)?

Mark 1.00 out of 1.00

Flag question

Answer: 400

Question 8

Correct

Mark 1.00 out of 1.00

Flag question

Given the 1-level page table of a process as bellow, with the frame size=1KB.

	FRAME	VALID
0	1291	1
1	12	0
2	5	1
3	23	1
4	132	0

Calculate the physical address of the logical address 3782? (e.g. 18932 or error)

Answer: 24262

Question 9

Correct

Mark 1.00 out of 1.00

Flag question

Suppose a paging system has the page fault rate=0.08%; the memory access time is: 150 nano seconds; and the page fault handling time is: 7 milli seconds. How many times the performance is slowdown? (eg. 87).

Answer: 38

Question 10

Correct

Suppose a system uses paging (1 level page table) with Translation Look-aside Buffer (TLB) for address translation. Which statement is INCORRECT?

Select one:

Mark 1.00 out of 1.00

Remove flag

- The physical address is f*frame_size+d, where f is the corresponding frame of p
- It always takes at least a TLB access and a 2 memory accesses for a reference (p, d) ✓
- A reference has the form of (p,d)
- It takes at least a TLB access and a memory access for a reference (p, d)

Question 11

Correct

Mark 1.00 out of 1.00

Flag question

Suppose a system uses paging on demand without a Translation Look-aside Table (TLB). The memory access time is 200 nano seconds; page-fault service time is 7 miliseconds; page-fault rate is 1/1000. Which is the Effective Access Time (EAT) of the system?

Select one:

- 9.2 micro seconds
- 6.2 micro seconds
- 8.2 micro seconds
- 7.2 micro seconds ✓

Question 12

Correct

Mark 1.00 out of 1.00

Flag question

Suppose a system uses paging (1-level page table) with the frame size of 4KB; the address register is 32bits. Which is the CORRECT split of the address register?

Select one:

- (page-offset)=(22:10)
- (page-offset)=(20:12) ✓
- (page-offset)=(19:13)
- (page-offset)=(21:11)

Question 13

Correct

Mark 1.00 out of 1.00

Flag question

Suppose a paging system has the page fault rate=0.3%; the memory access time is: 200 nano seconds; and the page fault handling time is: 7 milli seconds. How many times the performance is slowdown? (eg. 87).

Answer: 106 ✓

Question 14

Correct

Mark 1.00 out of 1.00

Flag question

A system uses proportional memory allocation method. There are 3 processes in the system: P1, P2, P3 with the size of 138KB, 96KB, and 164KB, correspondingly. Suppose the memory size is 180KB, and the frame size is 2KB, calculate the number of frames allocated for processes P1, P2, P3 (e.g. 23:34:12)?

Answer: 31:22:37 ✓

Question 15

Correct

Mark 1.00 out of 1.00

Flag question

Suppose a system uses segmentation memory allocation. The content of the segment table (limit, base) of a process is [(1000, 1400), (400, 6300), (400, 4300), (1100, 3200), (1000, 4700)]. Calculate the physical address of the reference (4, 106) (e.g. a number or invalid)?

Answer: 4806

Question 16

Correct

Mark 1.00 out of 1.00

Remove flag

Which is INCORRECT about thrashing?

Select one:

- LRU page replacement algorithm can prevent thrashing from occurring
- It is the situation where page fault rate is high, the time for serving page faults is high
- CPU utilization is low when thrashing occurs
- Working set model can prevent thrashing from occurring

Question 17

Correct

Mark 1.00 out of 1.00

Flag question

Suppose a system uses segmentation memory allocation. The content of the segment table (limit, base) of a process is [(1000, 1400), (400, 6300), (400, 4300), (1100, 3200), (1000, 4700)]. Calculate the physical address of the reference (1, 402) (e.g. a number or invalid)?

Answer: invalid

Question 18

Correct

Mark 1.00 out of 1.00

Flag question

Suppose a paging system has the page fault rate=0.08%; the memory access time is: 320 nano seconds; and the page fault handling time is: 7 milli seconds. How many times the performance is slowdown? (eg. 87).

Answer: 18

Question 19

Correct

Mark 1.00 out of 1.00

Flag question

Given the reference string: 7 0 1 2 0 3 0 4 2 3 0 3 2 1 2 0 1 7 0 1. Suppose the system uses Least Recently Used (LRU) page replacement algorithm with 3 frames. Calculate the total page faults?

Answer: 12

Question 20

Correct

Mark 1.00 out of 1.00

Given the 1-level page table of a process as bellow, with the frame size=1KB.

	FRAME	VALID

Flag question

0	4	1
1	12	0
2	5	1
3	23	0
4	51	1

Calculate the physical address of the logical address 4982? (e.g. 18932 or error)

Answer: 53110

Finish review

QUIZ NAVIGATION

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

Show one page at a time

Finish review

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