Started on	Thursday, 27 April 2023, 2:37 PM
State	Finished
Completed on	Thursday, 27 April 2023, 3:47 PM
Time taken	1 hour 10 mins
Grade	**58.00** out of 70.00 (**82.86**%)

Information

SECTION 3. File systems (15 points)

Consider file system with a block size of 8 K-byte, 1024 blocks on the single indirect level, and an i-node format that has 12 blocks for direct access, 1 block for single indirect access, 1 block for double indirect access, and 1 block for triple indirect access. Determine the following parameters (do not enter the unit when writing your answer):

Question **1**

Correct

Mark 5.00 out of 5.00

Number of bytes for the direct level:

Answer: 98304 ✔

Question **2**

Correct

Mark 5.00 out of 5.00

Number of blocks of the second level of indirection:

Answer: 1048576 ✔

Question **3**

Correct

Mark 5.00 out of 5.00

Size of an address (in bits):

Answer: 64 ✔

Information

SECTION 4. Page replacement algorithms (20 points) (All-or-nothing questions)

Question **4**

Correct

Mark 6.00 out of 6.00

Page references: 5,4,3,2,1,1,2,3,4

Algorithm: FIFO

Number of Frames: 3

5 ✔	5 ✔	5 ✔	2 ✔	2 ✔	2 ✔	2 ✔	2 ✔	2 ✔
	4 ✔	4 ✔	4 ✔	1 ✔	1 ✔	1 ✔	1 ✔	1 ✔
		3 ✔	3 ✔	3 ✔	3 ✔	3 ✔	3 ✔	4 ✔

Question **5**

Correct

Mark 7.00 out of 7.00

Page references: 4,5,6,7,8,9,9,8,7,6,5,4

Algorithm: LRU

Number of Frames: 4

Question **6**

Incorrect

Mark 0.00 out of 7.00

Page references: 5,4,3,2,1,1,2,3,4

Algorithm: CLOCK

Number of Frames: 3

Use bit: 0 = off, 1 = on

Information

SECTION 5. Fair-Share scheduling algorithm (10 points) (All-or-nothing question)

Question **7**

Correct

Mark 10.00 out of 10.00

Given a system with two processes (A and B) that are members of Group 1 and Group 2 respectively, execute the Fair-Share scheduling algorithm and complete the following table.

	Group 1			Group 2		
Time	Process A			Process B		
	Priority	Process CPU Count	Group CPU Count	Priority	Process CPU Count	Group CPU Count
0	45	0	0	45	0	0
1	75 ✔	30 ✔	30 ✔	45 ✔	0 ✔	0 ✔
2	59 ✔	15 ✔	15 ✔	75 ✔	30 ✔	30 ✔

You can assume that:

1. The base priority is equal to 45.
2. The processor is interrupted 60 times per time instant (the number of counts of the process that is currently running will be increased).
3. The weight of Group 1 is equal to the weight of Group 2.
4. If the priority of the two processes is the same, you will use the lowest PID criterion (using lexicographical order).

Information

SECTION 6. Uniprocessor scheduling algorithms (5 points each) (All-or-nothing questions)

Question **8**

Incorrect

Mark 0.00 out of 5.00

Execute FCFS for the following group of processes and complete the following table:

Process	A	B	C	D
$T_{Arrival}$	0	1	2	3
T_s	1	4	2	2
T_{Finish}	1 ✔	5 ✔	7 ✔	9 ✔
T_R	1 ✔	4 ✔	5 ✔	7 ✖

If two processes or more processes arrive at the ready queue at the same time, you will use the lowest PID criterion (using lexicographical order).

Question **9**

Correct

Mark 5.00 out of 5.00

Execute RR (Q=3) for the following group of processes and complete the following table:

Process	A	B	C	D
$T_{Arrival}$	0	1	2	3
T_s	1	4	2	2
T_{Finish}	1 ✔	9 ✔	6 ✔	8 ✔
T_R	1 ✔	8 ✔	4 ✔	5 ✔

If two processes or more processes arrive at the ready queue at the same time, you will use the lowest PID criterion (using lexicographical order).

Question **10**

Correct

Mark 5.00 out of 5.00

Execute SPN for the following group of processes and complete the following table:

Process	A	B	C	D	E
$T_{Arrival}$	0	2	4	6	8
T_s	2	3	5	1	4
T_{Finish}	2 ✔	5 ✔	10 ✔	11 ✔	15 ✔
T_R	2 ✔	3 ✔	6 ✔	5 ✔	7 ✔

If two or more processes in the ready queue have the shortest service time, you will use the lowest PID criterion (using lexicographical order).

Question **11**

Correct

Mark 5.00 out of 5.00

Execute SRT for the following group of processes and complete the following table:

Process	A	B	C	D
$T_{Arrival}$	0	1	2	3
T_s	1	4	2	2
T_{Finish}	1 ✔	9 ✔	4 ✔	6 ✔
T_R	1 ✔	8 ✔	2 ✔	3 ✔

1. If the process arriving has the same remaining execution time as the process in the CPU, then the process that is using the CPU will have the highest priority.

2. If there is no process in the execution state and two or more processes have the shortest remaining time, then you will use the lowest PID criterion (using lexicographical order).

Question **12**

Correct

Mark 5.00 out of 5.00

Execute HRRN for the following group of processes and complete the following table:

Process	**A**	**B**	**C**	**D**
$T_{Arrival}$	0	2	4	6
T_s	3	5	4	1
T_{Finish}	3 ✔	8 ✔	13 ✔	9 ✔
T_R	3 ✔	6 ✔	9 ✔	3 ✔

If two or more processes in the ready queue have the highest response rate, you will use the lowest PID criterion (using lexicographical order).

Question **13**

Complete

Not graded

Provide a file (JPEG, PDF, etc.) showing your work (step by step) while executing the uniprocessor scheduling algoritms.

Schedule Algo DEFAULT.xlsx

◄ Theory Part - Exam 3 (30 points / 1 attempt / 45 minutes)

Jump to...

Extra credit Exam 3 ►