

It has started	Monday, June 16, 2025, 10:23 AM
Condition	Completed
Completed	Monday, June 16, 2025, 11:41 AM
Time used	1 hour 17 minutes
Points	34.50/40.00
Rate	21.56 points out of 25.00 points possible to obtain (86.25 %)

Question **1**

Correctly

Points: 1.00 out of 1.00

The following situations trigger "error" exceptions:

Select all correct:

- ☒ a. memory reference beyond limit register value ✓
- ☐ b. memory reference in the area of the page that is not in memory
- ☒ c. a reference to memory that is not in the program address space ✓
- ☒ d. an attempt to execute an instruction from the area of the page for which the "no code" bit was set ✓

Your answer is correct.

The correct answers are: a reference to memory that is not in the program address space, memory reference beyond limit register value, an attempt to execute an instruction from the area of the page for which the "no code" bit was set

Question **2**

Correctly

Points: 1.00 out of 1.00

At the ready state is a process that:

Select all correct:

- ☒ a. waits for a processor ✓
- ☐ b. occupies and processor
- ☐ c. waits for an I/O operation to complete
- ☐ d. fills the processor idle time

Your answer is correct.

The correct answer is: waits for a processor

Question 3

Correctly

Points: 1.00 out of 1.00

Cloning a process with a *fork* operation results in (not taking to account the numerical result of *fork*):

Select all correct:

- ☒ a. Duplication of data segment and stack segment ✓
- ☐ b. Duplication of code segment, initialization of new data segment and stack segment
- ☐ c. Duplication of code, data and stack segments

Your answer is correct.

The correct answer is: Duplication of data segment and stack segment

Question 4

Incorrectly

Points: 0.00 out of 1.00

The virtualizer that takes over the guest application system call extracodes and transfers them to the host system for execution (adjusting the call parameters accordingly), it can be:

Select all correct:

- ☐ a. paravirtualizer
- ☐ b. full virtualizer
- ☒ c. emulator ✗
- ☒ d. API virtualizer ✓

Your answer is incorrect.

The correct answer is: API virtualizer

Question 5

Correctly

Points: 1.00 out of 1.00

What mechanism is used to save and restore the task state?

- ☐ a. task descriptor
- ☒ b. context switch ✓
- ☐ c. applications counter
- ☐ d. scheduling data

Poprawna odpowiedź to: context switch

Pytanie 6

Niepoprawnie

Punkty: 0,00 z 1,00

Nested page index tables require activity during:

references



Twoja odpowiedź jest niepoprawna.

Poprawna odpowiedź to:

Nested page index tables require activity during:

[swapping]

Pytanie 7

Częściowo poprawnie

Punkty: 0,50 z 1,00

Dynamic relocation is performed by:

- ☐ a. Compiler
- ☐ b. Linker
- ☐ c. Paging system
- ☒ d. Segment descriptors ✓

Prawidłowymi odpowiedziami są: Paging system, Segment descriptors

Pytanie 8

Poprawnie

Punkty: 3,00 z 3,00

For the disk operation scheduling SCAN method, the currently being executed operation is in 40 cylinder. The direction in the SCAN method is ascending. The next scheduled operations (in the order of their queuing) are:

Operation number	1	2	3	4	5
Cylinder number	51	32	39	44	48

For the next disk operation, enter the head travel distance (in cylinders) between the current and next operation.

Odpowiedź:

4



Poprawna odpowiedź to: 4

Pytanie **9**

Poprawnie

Punkty: 3,00 z 3,00

When opening a file, we specify the opening mode and the sharing mode.

Let's encode the opening codes:

fmOpenRead	10
fmOpenWrite	01
fmOpenReadWrite	00
fmShareDenyWrite	10
fmShareExclusive	00
fmShareDenyRead	01
fmShareDenyNone	11

The first program opened the file in mode 01 and sharing mode 00

The second program wants to open the file in mode 01 and sharing mode 01

Will the second program be able to open the file (0-no, 1-yes, 2-it depends on other circumstances)?

Odpowiedź: 

Poprawna odpowiedź to: 0

Pytanie **10**

Poprawnie

Punkty: 3,00 z 3,00

page	Last used	Bit R	belongs to process
1	91	0	3
2	92	1	5
3	89	1	4
4	90	1	5
5	95	0	5
6	96	0	4
7	93	1	4
8	94	0	4

Using the above table of the history of R bit for the pages in Workset swapping algorithm, with local frame allocation method, which page will be sent to the disk first? The current time slice number is 97, and the time range τ for the workset is 3 (the threshold $97 - \tau = 94$). Page scan starts from the top. The current process that needs a page to be loaded is 3. A process number is its priority (the smaller number, the higher priority). Provide a page number to be sent to the disk.

Odpowiedź: 

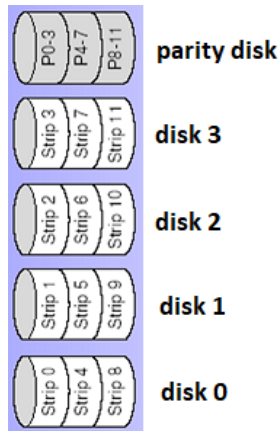
Poprawna odpowiedź to: 1

Pytanie **11**

Poprawnie

Punkty: 3,00 z 3,00

In RAID 4, data is placed in Strips that are "scattered" over the data disks, so that each subsequent strip is on the next data disk, modulo the number of disks. For this, there is a parity disk that holds the parity bits of zeroth bits, first bits, second bits, etc., equal-numbered strips divided by the number of data disks, for example, strips 0-3, 4-7, 8-11, etc.:



the start of strips 0,1,2,3 looks like this:

1	1	1	0	0	Parity disk
1	1	1	1	1	Disk 3
1	0	0	1	0	Disk 2
1	0	1	0	1	Disk 1
0	1	1	0	0	Disk 0

In the parity strip, the values are placed so that the parity bit keeps the corresponding strip bits 0-3 even.

Disk 3 has been corrupted and always reads 1. After replacing the disk with a new one, what values should I put in the strip on disk 3?

Enter the values of the consecutive bits on disk 3, without any separators between them, for example 00000

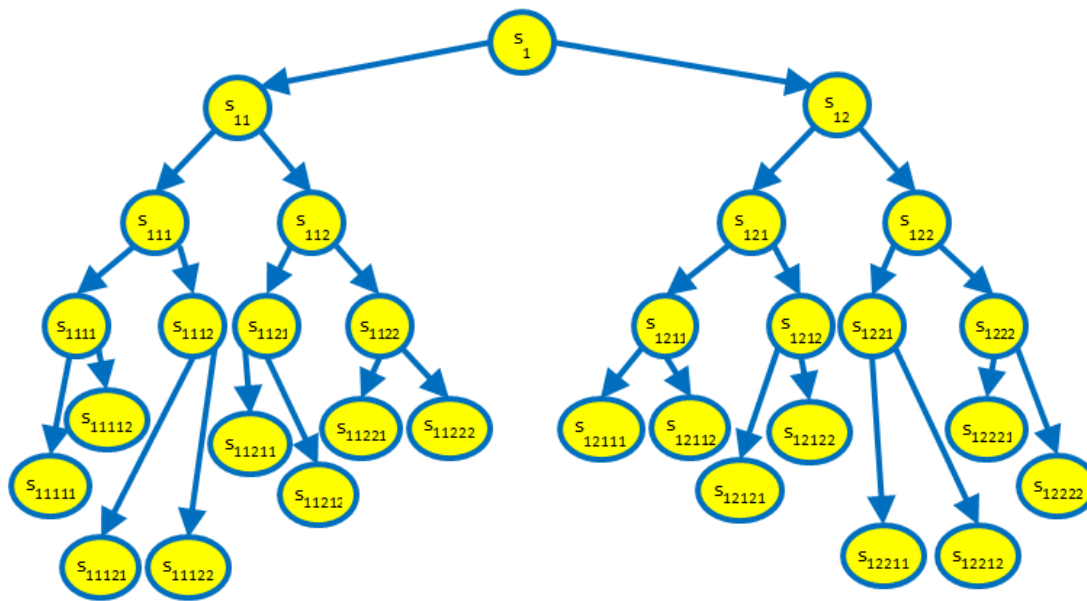
Odpowiedź: ✓

Poprawna odpowiedź to: 10111

Pytanie 12

Poprawnie

Punkty: 3,00 z 3,00



Above is the nesting structure of subroutines in some program.

Can there be a static link in subroutine s121 stack frame to subroutine s12 frame?

answer: 0-no, 1-yes

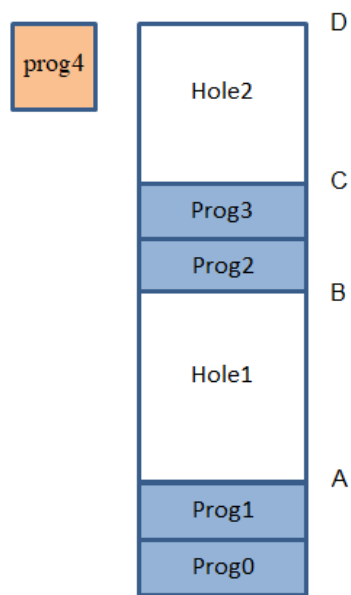
Odpowiedź: ✓

Poprawna odpowiedź to: 1

Pytanie **13**

Poprawnie

Punkty: 3,00 z 3,00



In the above memory allocation state, 4 programs are already in memory, and 5th program is waiting to be loaded into the memory. The borders of the holes are:

- A - 3K
- B - 7K
- C - 12K
- D - 14K

The memory is allocated to the programs in the best-fit rule, without making a new hole if the allocated block is larger than the demand. What will be the internal fragmentation after loading the program Prog4 of size 2K into memory?

Odpowiedź: ✓

===== for teacher =====

4 2

Poprawna odpowiedź to: 0

Pytanie **14**

Poprawnie

Punkty: 3,00 z 3,00

The virtual address consists of 8b page number and 8b offset. The page index table is shown below (index, content). For decimal address 1840, binary 0000 0111 0011 0000, enter the physical address in the form: frame number.offset (as decimal numbers, offset in 3 digits). For example, for a physical address consisting of frame 0 and offset 18, specify 0.018. If there is no physical address for the given virtual address, then -1 should be specified.

7	4
6	-1
5	7
4	11
3	6
2	-1
1	2
0	1

Odpowiedź: ✓

Poprawna odpowiedź to: 4,048

Pytanie **15**

Poprawnie

Punkty: 3,00 z 3,00

What is the average time in the system for tasks in the batch incoming in this order, using FCFS algorithm?

task	1	2	3	4
processing time	3,1	6,7	2,8	1,1

Odpowiedź: ✓

Poprawna odpowiedź to: 9,8

Pytanie **16**

Poprawnie

Punkty: 3,00 z 3,00

The organization of memory and processor is word-based. A word means 16 bits (int also takes 1 16-bit word). Hexadecimal values are preceded by a # character.

variable a has the value #a0c0

top of the stack (full descending, i.e. the stack pointer points to the most recently put element on the stack, and the stack expands towards lower addresses) #c100

stack frame before subroutine B call #c1010

address of subroutine B #1021

Calling rules: Parameters are put on the stack in accordance with the convention of the C language, i.e. starting from the last one, without a static connection, the result of the function is passed in registers. The stack is shown after subroutine B is called by itself (recursively), at label point C. Subroutine B is called for the first time B(a-2); somewhere in the program from address #1011. Label C has address #1050.

regardless of the programming language, subroutine B has the form

```
B(int i);

{
    int p=i+1;
C:    B(i-3);
}
```

The content of the cell at address #c0f9: [dynamic link](#) ✓

Address	content	
#c100	????	
#c0ff	#a0be	
#c0fe	#1012	
#c0fd	#c010	
#c0fc	#a0bf	
#c0fb	#a0bb	
#c0fa	#1051	
#c0f9	#c0fd	
#c0f8	#a0bc	
#c0f7	????	
#c0f6	????	

Twoja odpowiedź jest poprawna.

The correct answer is:

The organization of memory and processor is word-based. A word means 16 bits (int also takes 1 16-bit word). Hexadecimal values are preceded by a # character.

variable a has the value #a0c0

top of the stack (full descending, i.e. the stack pointer points to the most recently put element on the stack, and the stack expands towards lower addresses) #c100

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The content of the cell at address #c0f9:[dynamic link]

Address	content	
#c100	????	
#c0ff	#a0be	
#c0fe	#1012	
#c0fd	#c010	
#c0fc	#a0bf	
#c0fb	#a0bb	
#c0fa	#1051	
#c0f9	#c0fd	
#c0f8	#a0bc	
#c0f7	????	
#c0f6	????	

Question 17

Correctly

Points: 3.00 out of 3.00

page	history of R
0	101100100
1	000010001
2	011011111
3	110110100

Using the above table of the history of R bit for the pages in LFU swapping, which page will be sent to the disk first? The oldest bit R is on the left. Provide a page number.

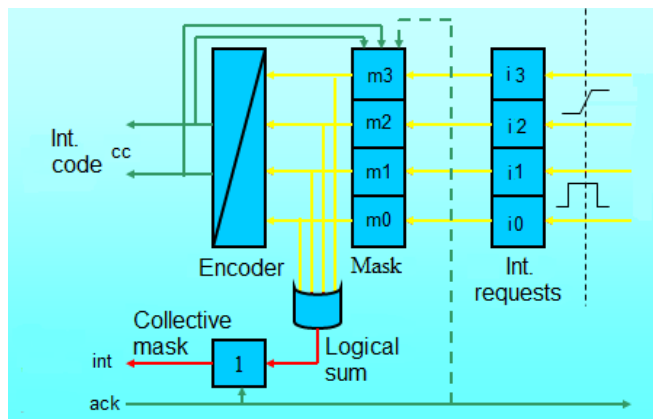
Answer: 

The correct answer is: 1

Question 18

Incorrectly

Points: 0.00 out of 3.00



In the given interrupt controller structure, the interrupt mask is 1111 (from m3 to m0), and interrupts 0010 (from i3 to i0) are reported.

The interrupt with index 3 has the highest priority.

What will be the new value of the interrupt mask? Provide the bits .m3m2m1m0 (mask preceded by a point) for example .0101

Answer: ❌

The correct answer is: 0.1100