Started on	Thursday, 27 June 2024, 12:36 PM
State	Finished
Completed on	Thursday, 27 June 2024, 1:48 PM
Time taken	1 hour 11 mins
Marks	53.58/75.00
Grade	**22.86** out of 32.00 (**71.44**%)

Question **1**

Correct

Mark 1.00 out of 1.00

Which swapping algorithms can be implemented based on hardware support in the form of a collective reading of reference bits and collective clearing of these bits?

Select one or more:

- a. LFU ✔
- b. FIFO
- c. LRU ✔
- d. optimal
- e. second chance
- f. NRU
- g. working set clock
- h. no algorithm
- i. working set

Twoja odpowiedź jest poprawna.

The correct answers are: LRU, LFU

Question 2

Correct

Mark 1.00 out of 1.00

Consider the following sequence of address references:

123, 215, 600, 1234, 76, 96.

If the page size is 100, the order of page references is as follows:

- a. 1,2,6,12
- b. 0,2,6,12,0,0
- c. 1,2,6,12,0,0 ✔
- d. 12,21,60,123,7,9

The correct answer is: 1,2,6,12,0,0

Question 3

Correct

Mark 1.00 out of 1.00

Imprecise interrupts can be handled:

Select one or more:

- a. only when the program allows accepting interrupts
- b. after clearing the pipeline from the instructions ✔
- c. after saving the full state of the pipeline ✔
- d. when new instructions are suspended to be fetched into the pipeline

Twoja odpowiedź jest poprawna.

The correct answers are: after clearing the pipeline from the instructions, after saving the full state of the pipeline

Question 4

Correct

Mark 1.00 out of 1.00

Address translation mechanism:

Select one or more:

- a. concatenates the frame number and page number
- b. concatenates the page number and page offset
- c. concatenates the frame number and offset on the page ✔
- d. adds the frame number to the page number

Twoja odpowiedź jest poprawna.

The correct answer is: concatenates the frame number and offset on the page

Question 5

Correct

Mark 1.00 out of 1.00

FIRST-FIT algorithm:

Select one or more:

- a. Requires an ascending sorting of the list of free blocks
- b. Avoids external fragmentation
- c. Causes external fragmentation ✔
- d. It allows for fast determining whether there is a free block of the required size

Twoja odpowiedź jest poprawna.

The correct answer is: Causes external fragmentation

Question 6

Correct

Mark 1.00 out of 1.00

SJF selects the task:

- a. which was first placed in the queue
- b. with the least CPU requirement ✔
- c. which was last placed in the queue
- d. who waited the longest in the queue

The correct answer is: with the least CPU requirement

Question 7

Partially correct

Mark 0.67 out of 1.00

What is true for simultaneous execution in the same context?

- a. The use of threads ensures concurrency within the process.
- b. A multiprocessor kernel can be concurrent ✔
- c. Threads minimize context switch time. ✔
- d. The shared context forces threads to run on the same processor

The correct answers are: Threads minimize context switch time., The use of threads ensures concurrency within the process., A multiprocessor kernel can be concurrent

Question 8

Correct

Mark 1.00 out of 1.00

The file system layer plays the following role in the operating system:

Select one or more:

- a. Controls file access rights ✔
- b. Performs file opening and closing operations ✔
- c. It performs directory services in the hierarchy of disk files ✔
- d. It runs programs stored in files

Twoja odpowiedź jest poprawna.

The correct answers are: Performs file opening and closing operations, It performs directory services in the hierarchy of disk files, Controls file access rights

Question 9

Correct

Mark 1.00 out of 1.00

Processor access scheduling decisions may be made under which of the following circumstances?

Select one or more:

- a. When a task transitions from the active state to the ready state ✔
- b. When a task terminates ✔
- c. When a task goes from the waiting state to the ready state ✔
- d. When a task goes from the active state to the waiting state ✔

Twoja odpowiedź jest poprawna.

The correct answers are: When a task goes from the active state to the waiting state, When a task transitions from the active state to the ready state, When a task goes from the waiting state to the ready state, When a task terminates

Question 10

Correct

Mark 1.00 out of 1.00

In which swapping algorithms is it necessary to collectively clear the M-bits?

Select one or more:

- a. no algorithm ✔
- b. working set clock
- c. NRU
- d. working set
- e. LFU
- f. FIFO
- g. clock
- h. LRU
- i. second chance

Twoja odpowiedź jest poprawna.

The correct answer is:
no algorithm

Question 11

Correct

Mark 1.00 out of 1.00

Static relocation is performed by:

- a. Special registers (DATUM)
- b. Loader ✔
- c. Paging system
- d. Segment descriptors

The correct answer is: Loader

Question 12

Correct

Mark 1.00 out of 1.00

What mechanism is part of time-sharing systems?

- a. short-term scheduler ✔
- b. long-term scheduler
- c. swapping
- d. medium-term scheduler

The correct answer is: short-term scheduler

Question 13

Correct

Mark 1.00 out of 1.00

Context switch is:

Select one or more:

- a. switching to the system stack
- b. calling the kernel of the operating system
- c. writing registers to the task stack and retrieving them from another task stack ✔
- d. extracode execution

Twoja odpowiedź jest poprawna.

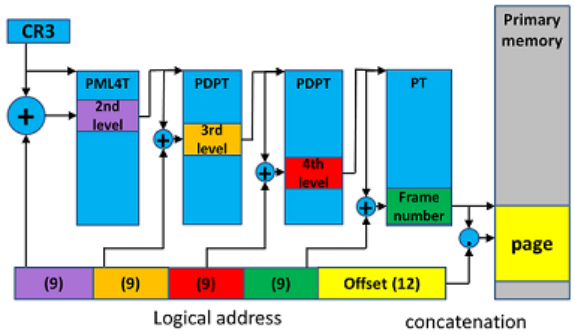
The correct answer is: writing registers to the task stack and retrieving them from another task stack

Question **14**

Correct

Mark 1.00 out of 1.00

In the four-level page index table, the frame number is:



Select one or more:

- a. in the first level table - the leftmost in the figure
- b. part in the table of each level
- c. in the table of the last level - the rightmost in the figure ✔
- d. none of the above answers

Twoja odpowiedź jest poprawna.

The correct answer is: in the table of the last level - the rightmost in the figure

Question **15**

Correct

Mark 1.00 out of 1.00

Virtual memory consists of:

Select one or more:

- a. primary memory and storage memory ✔
- b. primary memory and cloud storage
- c. main memory and cache
- d. cache and storage memory

Twoja odpowiedź jest poprawna.

The correct answer is: primary memory and storage memory

Question 16

Incorrect

Mark 0.00 out of 1.00

What type of code can execute on multiple datasets in parallel:

Select one or more:

- a. binary
- b. dynamically relocated ✖
- c. reentrant

Twoja odpowiedź jest niepoprawna.

The correct answer is: reentrant

Question 17

Correct

Mark 1.00 out of 1.00

What mechanism is used to desynchronize processes with different relative speeds?

Select one or more:

- a. scheduling
- b. preempting
- c. buffer ✔
- d. interrupts

Twoja odpowiedź jest poprawna.

The correct answer is: buffer

Question 18

Incorrect

Mark 0.00 out of 1.00

Address translation mechanism:

Select one or more:

- a. Concatenates the frame number and offset on the page
- b. Concatenates the frame number and page number
- c. Concatenates the page number and page offset ✖
- d. Adds the frame number to the page number

Twoja odpowiedź jest niepoprawna.

The correct answer is: Concatenates the frame number and offset on the page

Question 19

Correct

Mark 1.00 out of 1.00

When starting a program, how is control passed to it from the operating system?

Select one or more:

- a. jump
- b. extracode
- c. return from interrupt handler IRET ✔
- d. jump with trace

Twoja odpowiedź jest poprawna.

The correct answer is: return from interrupt handler IRET

Question 20

Correct

Mark 1.00 out of 1.00

The sweeping criteria include:

Select one or more:

- a. Analysis of program execution history ✔
- b. Program state ✔
- c. Segment referencing frequency
- d. Priority ✔

Twoja odpowiedź jest poprawna.

The correct answers are: Priority, Program state, Analysis of program execution history

Question 21

Correct

Mark 1.00 out of 1.00

Is memory protection useless on a single-user system?

- True
- False ✔

The correct answer is 'False'.

Question 22

Correct

Mark 1.00 out of 1.00

Paging - the key in associative memory is:

Select one or more:

- a. frame number
- b. page number ✔
- c. the frame number concatenated with the page number
- d. the page number concatenated with the frame number

Twoja odpowiedź jest poprawna.

The correct answer is: page number

Question 23

Correct

Mark 1.00 out of 1.00

What is a scheduler?

Select one or more:

- a. a kernel routine that selects a task to execute ✔
- b. the system process that allocates the processor
- c. procedure that schedules frame release in the page replace algorithm
- d. memory allocation procedure

Twoja odpowiedź jest poprawna.

The correct answer is: a kernel routine that selects a task to execute

Question 24

Correct

Mark 1.00 out of 1.00

Using Test-And-Set or Compare-And-Swap in synchronization:

Select one or more:

- a. Stops the processor if 0 is read
- b. It can only be applied in systems with shared memory ✔
- c. Requires organizing inactive waiting in queues
- d. It requires processes to actively wait ✔

Twoja odpowiedź jest poprawna.

The correct answers are: It requires processes to actively wait,
It can only be applied in systems with shared memory

Question 25

Incorrect

Mark 0.00 out of 1.00

System/user threads:

Select one or more:

- a. User-level thread descriptors are stored in the operating system kernel. ✖
- b. User-level threads share the same stack.
- c. User-level threads share the same execution context. ✔

Twoja odpowiedź jest niepoprawna.

The correct answer is: User-level threads share the same execution context.

Question 26

Partially correct

Mark 0.75 out of 1.00

The environment in which the process is executed includes:

Select one or more:

- a. Open files
- b. Contents of the interrupt request register
- c. General purpose registers content ✔
- d. Process address space ✔
- e. A set of environment variables ✔
- f. The content in the memory management unit

Twoja odpowiedź jest częściowo poprawna.

You have correctly selected 3.

The correct answers are: A set of environment variables, Process address space, General purpose registers content, Open files

Question 27

Correct

Mark 1.00 out of 1.00

The sequence of actions in interrupt handling:

1. saving a copy of the interrupt vector (PC and SR) ✔
2. switching to system mode (modification of PC and status register) ✔
3. programmatic context saving ✔
4. switching to the system stack ✔

Twoja odpowiedź jest poprawna.

The correct answer is:
The sequence of actions in interrupt handling:

1.[saving a copy of the interrupt vector (PC and SR)]

2.[switching to system mode (modification of PC and status register)]

3.[programmatic context saving]

4.[switching to the system stack]

Question 28

Partially correct

Mark 0.50 out of 1.00

What does the file system layer do?

- a. Manages remote files
- b. Tracks the status of information
- c. Manages remote file systems
- d. Manages files ✔

The correct answers are: Tracks the status of information, Manages files

Question 29

Incorrect

Mark 0.00 out of 1.00

When is the scheduler called?

Select one or more:

- a. at the request of a user task
- b. when the scheduler decides itself
- c. at the start of execution of each kernel procedure ✖
- d. at the end of the execution of each kernel procedure

Twoja odpowiedź jest niepoprawna.

The correct answer is: at the end of the execution of each kernel procedure

Question 30

Correct

Mark 1.00 out of 1.00

Twins algorithm:

Select one or more:

- a. Causes external fragmentation ✔
- b. Causes less fragmentation than static division into equal blocks ✔
- c. Causes internal fragmentation ✔

Twoja odpowiedź jest poprawna.

The correct answers are: Causes internal fragmentation, Causes external fragmentation, Causes less fragmentation than static division into equal blocks

Question 31

Correct

Mark 1.00 out of 1.00

On UNIX, the number of files is directly limited by:

Select one or more:

- a. The size of the space allocated for files ✔
- b. Allocation unit size
- c. The number of bits of the field describing the size of the file
- d. The number of bits of the disk address
- e. FAT size

Twoja odpowiedź jest poprawna.

The correct answer is: The size of the space allocated for files

Question 32

Correct

Mark 1.00 out of 1.00

Between fork and exec operations, the following operations are performed:

Select one or more:

- a. Opening the appropriate input/output files ✔
- b. Allocating the appropriate amount of memory for the program being started
- c. Loading the program to be started into memory

Twoja odpowiedź jest poprawna.

The correct answer is: Opening the appropriate input/output files

Question 33

Correct

Mark 1.00 out of 1.00

Devices report their readiness by:

Select one or more:

- a. system call
- b. setting a status bit ✔
- c. issuing an interrupt ✔
- d. unblocking the interrupts

Twoja odpowiedź jest poprawna.

The correct answers are: issuing an interrupt, setting a status bit

Question 34

Correct

Mark 1.00 out of 1.00

The page fault exception is specific in that:

Select one or more:

- a. execution of the instruction may require decrementing the program counter ✔
- b. is reported in the "middle" of an instruction execution ✔
- c. continuation of the instruction execution may require the saving of internal processor registers storing intermediate values ✔
- d. there is no return to the program from it

Twoja odpowiedź jest poprawna.

The correct answers are: is reported in the "middle" of an instruction execution, execution of the instruction may require decrementing the program counter, continuation of the instruction execution may require the saving of internal processor registers storing intermediate values

Question 35

Correct

Mark 1.00 out of 1.00

Two successive executions of operation V in one process on a binary semaphore in down state:

Select one or more:

- a. If the semaphore guards a critical region, it can lets two processes enter the critical region ✔
- b. Raises the semaphore if there are no suspended processes ✔
- c. Increases semaphore value by 2
- d. It doesn't change anything

Twoja odpowiedź jest poprawna.

The correct answers are: If the semaphore guards a critical region, it can lets two processes enter the critical region, Raises the semaphore if there are no suspended processes

Question 36

Correct

Mark 1.00 out of 1.00

Multiprogram systems:

- a. They are only used on large mainframe computers
- b. It does any job faster
- c. It holds more than one program in primary memory at the same time ✔
- d. They are easier to develop than single-program systems

The correct answer is: It holds more than one program in primary memory at the same time

Question 37

Incorrect

Mark 0.00 out of 1.00

Multiprogramming is a technique in which, as a rule:

Select one or more:

- a. only addresses that can be generated by the processor when performing calculations are used
- b. is a memory allocation method by which a program is divided into equal parts
- c. is a method of allocating processor time ✖
- d. many programs can be stored in primary memory ✔

Twoja odpowiedź jest niepoprawna.

The correct answer is: many programs can be stored in primary memory

Question 38

Correct

Mark 1.00 out of 1.00

The effective address is also:

Select one or more:

- a. Physical address
- b. Absolute address
- c. Indirect address
- d. Logical address ✔

Twoja odpowiedź jest poprawna.

The correct answer is: Logical address

Question 39

Correct

Mark 1.00 out of 1.00

Page thrashing is a phenomenon involving:

Select one or more:

- a. frequent downloading of pages that have just been swapped out from memory ✔
- b. frequent context changes that require page index tables to be reloaded
- c. frequently changing the values of bits describing pages in frames
- d. loading the same page over and over again

Twoja odpowiedź jest poprawna.

The correct answer is: frequent downloading of pages that have just been swapped out from memory

Question 40

Correct

Mark 1.00 out of 1.00

What mechanism is part of batch systems?

- a. high-level scheduler ✔
- b. low-level scheduler
- c. no scheduler is needed
- d. medium-tevel scheduler ✔

The correct answers are: high-level scheduler, medium-tevel scheduler

Question 41

Correct

Mark 1.00 out of 1.00

The sweeping mechanism consists in:

Select one or more:

- a. Loading segments into primary memory and sending them to disk ✔
- b. Loading pages into the primary memory and sending them to the disk
- c. Merging adjacent free memory blocks
- d. Moving programs around in memory to eliminate fragmentation

Twoja odpowiedź jest poprawna.

The correct answer is: Loading segments into primary memory and sending them to disk

Question 42

Correct

Mark 1.00 out of 1.00

A memory management technique in which the system divides memory into equal-sized chunks with virtual base addresses divisible by a chunk size, to easily manage relocation, is called:

Select one or more:

- a. swapping
- b. mapping
- c. fragmentation
- d. paging ✔

Twoja odpowiedź jest poprawna.

The correct answer is: paging

Question 43

Correct

Mark 1.00 out of 1.00

In indulgent scheduling, the process keeps the CPU until:

Select one or more:

- a. next interrupt from the timer
- b. next interrupt from the device
- c. waiving ✔
- d. termination ✔

Twoja odpowiedź jest poprawna.

The correct answers are: waiving, termination

Question 44

Correct

Mark 1.00 out of 1.00

Allocation unit for file storage:

- a. must be constant across the disk partition ✔
- b. may vary between partitions ✔
- c. may differ between files in a partition
- d. is any integer multiple of a sector (>0)

The correct answers are: must be constant across the disk partition, may vary between partitions

Question 45

Incorrect

Mark 0.00 out of 1.00

Allocation unit for file storage:

- a. may be a variable in a partition
- b. may differ between files on a partition ✖
- c. It should be selected to match the characteristics of the data
- d. must be constant across the disk partition ✔

The correct answer is: must be constant across the disk partition

Question 46

Correct

Mark 1.00 out of 1.00

When an exception is raised in user mode, the operating system switches to the kernel system stack, and what happens when an exception is raised in system mode?

Select one or more:

- a. nothing special, it builds the context on the kernel system stack ✔
- b. initializes the kernel system stack from the scratch
- c. switches to the next kernel system stack
- d. switches back to the application program stack

Twoja odpowiedź jest poprawna.

The correct answer is: nothing special, it builds the context on the kernel system stack

Question 47

Correct

Mark 1.00 out of 1.00

Conditional variables in a monitor

Select one or more:

- a. They are used to suspend processes that cannot run because the conditions for their continuation are not met ✔
- b. They guard access to the critical region of the monitor
- c. They are used to check whether the conditions for process continuation are met

Twoja odpowiedź jest poprawna.

The correct answer is: They are used to suspend processes that cannot run because the conditions for their continuation are not met

Question 48

Correct

Mark 1.00 out of 1.00

By definition, a deadlock is a situation where:

Select one or more:

- a. any greater than zero number of processes are waiting for conditions that cannot be met ✔
- b. any greater than one number of processes are waiting for conditions that cannot be met
- c. at least two processes are waiting for conditions that cannot be met
- d. exactly one process is waiting for a condition that cannot be met

Twoja odpowiedź jest poprawna.

The correct answer is: any greater than zero number of processes are waiting for conditions that cannot be met

Question 49

Incorrect

Mark 0.00 out of 1.00

How is exception identification performed?

Select one or more:

- a. all exceptions are specified using the data bus
- b. the specification of hardware interrupts is given over the data bus
- c. the specification of hardware interrupts and traps is given over the data bus ✖
- d. the specification of hardware interrupts and errors is given over the data bus

Twoja odpowiedź jest niepoprawna.

The correct answer is: the specification of hardware interrupts is given over the data bus

Question 50

Correct

Mark 1.00 out of 1.00

In a multiprocessor operating system, interrupt blocking is sufficient to prevent the microkernel from executing its routines simultaneously

- True
- False ✔

nie

The correct answer is 'False'.

Question 51

Correct

Mark 1.00 out of 1.00

After performing the mount(/dev/hd5,/usr/x/bin/hd5) operation, the file /usr/z/a on the mounted disk should be referenced by:

Select one or more:

- a. /dev/hd5/usr/z/a
- b. /usr/x/bin/hd5/usr/z/a ✔
- c. /usr/x/bin/dev/hd5/usr/z/a

Twoja odpowiedź jest poprawna.

The correct answer is: /usr/x/bin/hd5/usr/z/a

Question 52

Correct

Mark 1.00 out of 1.00

The scheduling goal, which is to occupy processors as efficiently as possible, is:

Select one or more:

- a. response time
- b. productivity
- c. utilization ✔

Twoja odpowiedź jest poprawna.

The correct answer is: utilization

Question 53

Correct

Mark 1.00 out of 1.00

When a suspended program is moved to auxiliary memory, its process state is called:

- a. moved out
- b. rinsed out
- c. swept away ✔
- d. exchanged

The correct answer is: swept away

Question 54

Correct

Mark 1.00 out of 1.00

Address translation aims to:

Select one or more:

- a. detecting the phenomenon of locality of references
- b. converting a virtual address to a physical one ✔
- c. Generating a "frame error" interrupt when the page is out of memory
- d. converting a physical address to a virtual one

Twoja odpowiedź jest poprawna.

The correct answer is: converting a virtual address to a physical one

Question 55

Partially correct

Mark 0.67 out of 1.00

The hardware resources of a computer system are:

Select one or more:

- a. Primary memory ✔
- b. Peripheral devices ✔
- c. Windows on the screen
- d. Processor time

Twoja odpowiedź jest częściowo poprawna.

You have correctly selected 2.

The correct answers are: Processor time, Primary memory, Peripheral devices

Question 56

Incorrect

Mark 0.00 out of 1.00

The return from interrupt instruction:

Select one or more:

- a. always jumps to the process that was interrupted
- b. restores the interrupt vector
- c. restores general purpose registers ✖
- d. restores the stack pointer ✖

Twoja odpowiedź jest niepoprawna.

The correct answer is: restores the interrupt vector

Question 57

Correct

Mark 1.00 out of 1.00

Dynamic relocation is performed by:

- a. Loader
- b. Linker
- c. Compiler
- d. Special registers (DATUM) ✔

The correct answer is: Special registers (DATUM)

Question 58

Incorrect

Mark 0.00 out of 1.00

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

Select one or more:

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

Twoja odpowiedź jest niepoprawna.

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

Question 59

Incorrect

Mark 0.00 out of 1.00

Paging - two-level index tables mode of operation

Select one or more:

- [x] a. The content of a level 1 table element points to a level 2 table ✖
- [ ] b. The content of the level 1 table element is concatenated (combined) with the content of the level 2 table element
- [ ] c. The content of a level 1 table element points to a level 2 table
- [x] d. The content of a level 1 table element is an index in a level 2 table ✖

Twoja odpowiedź jest niepoprawna.

The correct answer is: The content of a level 1 table element points to a level 2 table

Question 60

Correct

Mark 1.00 out of 1.00

Address translation is handled by a unit called (give the abbreviation):

Answer: MMU ✔

The correct answer is: MMU

Question 61

Incorrect

Mark 0.00 out of 5.00

What is the average time in the system for tasks in the batch, using SJF algorithm?

task	1	2	3	4
processing time	3.4	5.3	2.3	1.1

Answer: 4.3 ✖

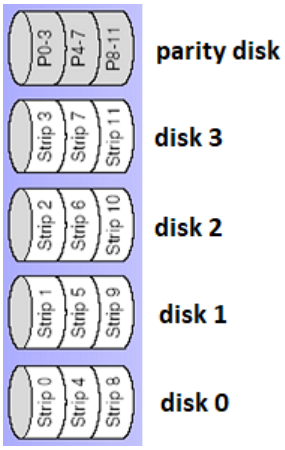
The correct answer is: 5.8

Question 62

Correct

Mark 5.00 out of 5.00

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
0	0	0	0	0	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 damaged and reads only 0. After replacing the disk with a new one, what values should be put in the strip on disk 3?

Answer: 10111 ✔

The correct answer is: 10111

Question 63

Incorrect

Mark 0.00 out of 5.00

The virtual address consists of 7b page number and 9b offset. The page index table is shown below (index, content). For decimal address 2690, binary 0000 1010 1000 0010, specify 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	12
6	0
5	-1
4	4
3	9
2	5
1	-1
0	2

Answer: 2.130 ✖

The correct answer is: -1.000