Table of Contents

CH 1 (1)

Not allowed. This test can only be taken once.

Force Completion

Once started, this test must be completed in one sitting. Do not leave the test before clicking **Save and Submit**.

Remaining Time: **6 minutes, 47 seconds.**

Question Completion Status:

« ‹ Question **6** of **10** › »

⚠ Moving to another question will save this response.

0.2 points Save Answer

The one program running at all times on the computer is the

a. application program

b. kernel

c. system program

d. bootstrap program

Force Completion

Once started, this test must be completed in one sitting. Do not leave the test before clicking **Save and Submit**.

Remaining Time: **8 minutes, 02 seconds.**

Question Completion Status:

« ‹ Question **4** of **10** › »

⚠ Moving to another question will save this response.

0.2 points Save Answer

A device driver is

a. a computer hardware that allows the operating system to communicate with the device

b. none of the above

c. a computer program that allows the operating system to communicate with the device

Force Completion

Once started, this test must be completed in one sitting. Do not leave the test before clicking **Save and Submit**.

Remaining Time: **8 minutes, 35 seconds.**

Question Completion Status:

« ‹ Question **3** of **10** › »

⚠ Moving to another question will save this response.

0.2 points Save Answer

Whenever one CPU alters the data in its local cache, the cache of the other CPU must receive an updated version of this data. This is called cache

a. coherency

b. redundancy

c. integrity

d. normalization

Force Completion

Once started, this test must be completed in one sitting. Do not leave the test before clicking **Save and Submit**.

Remaining Time: **7 minutes, 08 seconds.**

Question Completion Status:

« ‹ Question **5** of **10** › »

⚠ Moving to another question will save this response.

0.2 points Save Answer

The advantages of multiprocessors:

a. increased throughputs

b. economy of scale

c. increased realiability

d. All of the above

Force Completion

Once started, this test must be completed in one sitting. Do not leave the test before clicking **Save and Submit**.

Remaining Time: **6 minutes, 42 seconds.**

Question Completion Status:

Question **7** of **10**

⚠ Moving to another question will save this response.

0.2 points Save Answer

Which of the following is a memory management activity?

a. Disk scheduling

b. creating and deleting files and directories

c. creating and deleting user and system processes

Force Completion

Once started, this test must be completed in one sitting. Do not leave the test before clicking **Save and Submit**.

Remaining Time: **6 minutes, 15 seconds.**

Question Completion Status:

« ‹ Question **9** of **10** › »

⚠ Moving to another question will save this response.

0.2 points Save Answer

Privileged instructions can be executed in

a. kernel mode

b. user mode

c. both kernel and user modes

d. None of the above

Remaining Time: **5 minutes, 53 seconds.**

Question Completion Status:

Save and Submit

« < Question **10** of **10**

⚠ Click **Submit** to complete this assessment.

0.2 points Save Answer

If RAM can be as large as a disk, why we cannot eliminate the disk?

a. None of the above

b. RAM is non-volatile

c. Disk is volatile

d. Disk is non-volatile

Remaining Time: **5 minutes, 35 seconds.**

Question Completion Status:

Question **1** of **10**

⚠ Moving to another question will save this response.

0.2 points ✓ Saved

A trap or exception is

- a. software-generated interrupt
- b. hardware-generated interrupt
- c. the kernel
- d. None of the above

Force Completion

Once started, this test must be completed in one sitting. Do not leave the test before clicking **Save and Submit**.

Remaining Time: **5 minutes, 33 seconds.**

Question Completion Status:

Question **2** of **10**

⚠ Moving to another question will save this response.

0.2 points ✓ Saved

Device controller informs CPU that it has finished its operation by causing .....

a. none of above

b. interrupt

c. I/O request

d. system call

Not allowed. This test can only be taken once.

Force Completion

Once started, this test must be completed in one sitting. Do not leave the test before clicking **Save and Submit**.

Remaining Time: **6 minutes, 28 seconds.**

Question Completion Status:

« ‹ Question **8** of **10** › »

⚠ Moving to another question will save this response.

0.2 points Save Answer

The bootstrap program is

- a. loaded at power-up or reboot
- b. stored in ROM or RPROM
- c. loads operating system kernel and starts execution

CH 1 (2)

Take Test: Quiz 1

Test Information

Description

الاختبار القصير الأول

Instructions

لديك 15 دقيقة لحل الأسئلة التالية

Timed Test	This test has a time limit of 15 minutes.This test will save and submit automatically when the time expires. Warnings appear when **half the time**, **5 minutes**, **1 minute**, and **30 seconds** remain.
Multiple Attempts	Not allowed. This test can only be taken once.
Force Completion	Once started, this test must be completed in one sitting. Do not leave the test before clicking **Save and Submit**.

QUESTION 1 **0.2 points** Saved

Voice over IP such as Skype is example of

- (●) a. Peer-to-peer
- ( ) b. None of the above
- ( ) c. traditional computing
- ( ) d. client-server

QUESTION 2 **0.2 points** Saved

If RAM can be as large as a disk, why we cannot eliminate the disk?

Remaining Time: **10 minutes, 57 seconds.**

Question Completion Status:

QUESTION 3 — **0.2 points** — Saved

A trap or exception is

- (●) a. software-generated interrupt
- ( ) b. hardware-generated interrupt
- ( ) c. the kernel
- ( ) d. None of the above

QUESTION 4 — **0.2 points** — Saved

The bootstrap program is

- ( ) a. loaded at power-up or reboot
- ( ) b. stored in ROM or RPROM
- ( ) c. loads operating system kernel and starts execution
- (●) d. All the above

QUESTION 5 — **0.2 points** — Saved

Which of the following is a memory management activity?

- (●) a. Allocating and deallocating memory space as needed
- ( ) b. creating and deleting user and system processes
- ( ) c. Disk scheduling
- ( ) d. creating and deleting files and directories

QUESTION 6 — **0.2 points** — Saved

You are going to buy a laptop, what is the most important part that you will check from the following?

- (●) a. it has SSD: Solid-State Disk
- ( ) b. it has HDD: Hard Disk Drive
- ( ) c. it has CD drive
- ( ) d. it has external mouse

Remaining Time: **10 minutes, 57 seconds.**

Question Completion Status:

- (●) b. kernel
- ( ) c. application program
- ( ) d. bootstrap program

QUESTION 8 — **0.2 points** — Saved

Select the true statement:

- ( ) a. Multi-threaded process has only one program counter per all threads
- ( ) b. Single-threaded process has multiple program counters
- (●) c. Single-threaded process has one program counter
- ( ) d. Multi-threaded process has multiple program counters per thread

QUESTION 9 — **0.2 points** — Saved

Whenever one CPU alters the data in its local cache, the cache of the other CPU must receive an updated version of this data. This is called cache

- ( ) a. integrity
- ( ) b. normalization
- ( ) c. redundancy
- (●) d. coherency

QUESTION 10 — **0.2 points** — Saved

The advantages of multiprocessors:

- ( ) a. increased throughputs
- ( ) b. economy of scale
- ( ) c. increased realiability
- (●) d. All of the above

Click Save and Submit to save and submit. Click Save All Answers to save all answers.

Remaining Time: **10** minutes, **57** seconds.

Question Completion Status:

CH 2

Question **2** of **10**

⚠ Moving to another question will save this response.

0.2 points Save Answer

Message passing model is useful for exchanging smaller amounts of data.

True

False

Question **3** of **10**

⚠ Moving to another question will save this response.

0.2 points Save Answer

Data form in shared-memory model is determined by the OS.

True ○

False ◉

Question **4** of **10**

⚠ Moving to another question will save this response.

0.2 points Save Answer

System calls are directly accessible by the user program

True ○

False ◉

Question 1

0.2 points ✓ Saved

Layered approach simplifies debugging, but layers need to be carefully defined.

- (●) True
- ( ) False

Question **5** of **10**

⚠ Moving to another question will save this response.

0.2 points Save Answer

MS-DOS is a multitasking OS.

True ○

False ◉

⚠ Moving to another question will save this response.

0.2 points Save Answer

The monolithic structure used in UNIX was easy to implement and maintain.

True ○

False ◉

Question **7** of **10**

⚠ Moving to another question will save this response.

0.2 points Save Answer

Program execution is one of the services provided by the OS to the user.

True

False

⚠ Moving to another question will save this response.

0.2 points ✔ Saved

using registers to pass parameters of system call limits the number and length of parameters being passed.

True ◉

False ○

Question **9** of **10**

⚠ Moving to another question will save this response.

0.2 points Save Answer

Accounting service provided by the OS to allocate resources to each jobs concurrently.

True ○

False ◉

Question **10** of **10**

⚠ Click **Submit** to complete this assessment.

0.2 points Save Answer

Many modern operating systems implements loadable kernel modules

True

False

CH 3

⚠ Moving to the next question prevents changes to this answer.

Question 5

The ____ of a process contains temporary datasuch as function parameters, return addresses,and local variables.

- a. heap
- b. data section
- c. text section
- d. stack

⚠ Moving to the next question prevents changes to this answer.

⚠ Moving to the next question prevents changes to this answer.

Question 6

The OS is responsible to perform some tasks for processes. Which of the following tasks?

- a. creation and deletion of processes
- b. scheduling of processes
- c. handling deadlock for processes
- d. all of the above

⚠ Moving to the next question prevents changes to this answer.

⚠ Moving to the next question prevents changes to this answer.

Question 7

The state transition from running to waiting happens when a process

a. is dispatched by the scheduler

b. completes an I/O or event handling

c. performs an I/O or event handling

d. is interrupted

⚠ Moving to the next question prevents changes to this answer.

⚠ Moving to the next question prevents changes to this answer.

Question 8

When a child process is created, which of the following is a possibility?

- a. The child process runs concurrently with the parent
- b. the child process has a new program loaded into it
- c. the child is a duplicate of the parent
- d. all of the above

⚠ Moving to the next question prevents changes to this answer.

⚠ Moving to the next question prevents changes to this answer.

Question 9

The heap (as a part of a process) contains

- a. temporary data and local variables
- b. program counter
- c. the program code
- d. dynamically allocated memory during run time

⚠ Moving to the next question prevents changes to this answer.

⚠ Click **Submit** to complete this assessment.

Question 10

A process can be terminated due to

a. normal exit

b. fatal error

c. killed by its parent

d. all of the above

⚠ Click **Submit** to complete this assessment.

Moving to the next question prevents changes to this answer.

Question 1 of 10

Question 1

0.2 points Save Answer

The list of processes waiting for a particular I/O device is called a(n) ____.

a. standby queue

b. device queue

c. ready queue

d. interrupt queue

Moving to the next question prevents changes to this answer.

Question 1 of 10

⚠ Moving to the next question prevents changes to this answer.

Question 2

Which of the following is part of the PCB?

- a. process ID
- b. process state
- c. program counter
- d. all of the above

⚠ Moving to the next question prevents changes to this answer.

⚠ Moving to the next question prevents changes to this answer.

Question 3

The state transition from waiting to ready happens when a process

a. completes an I/O or event handling

b. is dispatched by the scheduler

c. is interrupted

d. performs an I/O or event handling

⚠ Moving to the next question prevents changes to this answer.

⚠ Moving to the next question prevents changes to this answer.

Question 4

A process may need

- a. CPU and memory
- b. access files
- c. I/O devices
- d. all of the above

⚠ Moving to the next question prevents changes to this answer.

Question 7

What is the output of the following code segment?

```
if (fork()== 0)

printf ("p");

else

{ wait(); printf ("c");}
```

Question 8

The state transition from waiting to running happens when a process

CH 4

Question 1

Data parallelism

- [x] distributes subsets of the data across multicores
- [ ] distributes threads across cores
- [ ] runs thread with data on a single core.
- [ ] distributes different operations among multicores.

Question 2

Illegal memory access generates synchronous signal.

- (●) True
- ( ) False

⚠ Moving to the next question prevents changes to this answer.

Question 3

Deferred cancellation terminates the target thread immediately

- ○ True
- ◉ False

⚠ Moving to the next question prevents changes to this answer.

Question 4

Modern operating systems extended the process concept to allow a process to have

- (●) multiple threads of execution and thus to perform more than one task at a time.
- ( ) multiple process executing simultaneously
- ( ) multiple program counters
- ( ) none of the above

Question 5

Thread Local storage for each thread is similar to local variables

- ○ True
- ◉ False

Question 6

Threads share the same

- stack
- registry
- code
- none of the above

Question 7

Parallelism means that a system can run more than one task simultaneously

- [x] True
- [ ] False

Question 8

One-to-one thread mapping is less expensive than many-to-many mapping.

- ○ True
- ◉ False

Question 9

Lightweight process (LWP) is a data structure which appears as:

- (●) Virtual processor to a thread
- ( ) Virtual memory for a thread
- ( ) Virtual OS for a thread
- ( ) none of the above

Question 10

One of the followings is not a challenge for multicore programming

- ○ testing and debugging
- ○ balance
- ◉ scalability
- ○ dividing activities

CH 5

Question 2

Disabling interrupts to implement the critical section problem in multiprocessing operating systems is

- a. Inefficient and the operating system will not be scalable
- b. Efficient but the operating system will not be scalable
- c. Efficient and the operating system will be scalable
- d. Inefficient and the operating system will be scalable

Question 3

Which of the following instructions perform busy waiting

- ○ compare_and_swap
- ○ test_and_set
- ○ acquire()
- ◉ all of the above

Question 4

Kernel code is always free from race conditions.

- ○ True
- ◉ False

Question 5

..... happens when a process may never be removed from the semaphore queue.

- busy waiting
- starvation
- priority inversion
- deadlock

Question 1

Producer code:

```
while (true) {
        /* produce an item in next produced */
        while (counter == BUFFER_SIZE) ;
        buffer[in] = next_produced;
        in = (in + 1) % BUFFER_SIZE;
        counter++;
}
```

What is the critical section in the code of the producer?

- a. while (counter == BUFFER_SIZE) ;
- b. counter++;
- c. in = (in + 1) % BUFFER_SIZE;
- d. buffer[in] = next_produced;

⚠ Moving to the next question prevents changes to this answer.

Question 6

An instruction that executes atomically

a. must consist of only one machine instruction

b. executes as a single unit and cannot be interrupted

c. cannot be used to solve the critical section problem

d. executes as multiple units and can be interrupted

Question 7

Non-preemptive kernels are free of race conditions.

- (●) True
- ( ) False

Question 8

Peterson's solution can work for multiple processes.

- ○ True
- ◉ False

What is the initial value of the binary semaphore S, so the wait and signal below can work correctly?

```
wait(S) {
    while (S <= 0) ; // busy wait
    S--;
}
signal(S) {  S++; }
```

- ○ -1
- ◉ 1
- ○ 0
- ○ 2

Question 10

The requirements a solution to the critical section problem must satisfy:

- a. Mutual exclusion, progress and efficiency
- b. Mutual exclusion , bounded waiting and progress
- c. Mutual exclusion , progress, and paging
- d. None of the above

Question 11

0.125 points Save Answer

Suppose we want to use **compare_and_swap (int *value, int expected, int new_value)** instruction to protect a critical section, what should be the initial value for **value**

a. FALSE

b. 0

c. N where N is the number of processes with critical sections

d. 1

A process needs to wait before it enters its critical section, if **compare_and_swap** returns

- 0
- Number of processes in the critical section
- 1
- TRUE

Question 13

Peterson's solution is supported by computer hardware.

- ○ True
- ◉ False

Which requirement is not met by the following solution?

```
do {
  while (turn == j);
  critical section
  turn = j;
  remainder section
  } while (true);
```

- progress
- mutual exclusion
- bounding waiting
- progress and bounding waiting

الجواب الصحيح Progress

Question 15

When two or more processes are waiting indefinitely for an event that can be caused by one of the waiting proceses.

- mutex locks
- priority inversion
- semaphore
- deadlock

Question 16

Race condition may occur when

- several processes read the same data concurrently
- One process manipulates the same data concurrently
- several processes manipulate the same data concurrently
- several processes manipulate different data concurrently

Question 3

0 out of 0.2 points

Assume we used shared memory solution for producer-consumer problem and the BUFFER_SIZE is 10. How many elements will in the buffer when the buffer is full?

CH 6

Question Completion Status:

QUESTION 1

Given the processes as described in the following:

Process	Arrival time	Burst Time
P1	3	5
P2	2	4
P3	0	7
P4	1	2

What is the order of the processes that will be scheduled using **shortest remaining time algorithm.**

- a. P3, P4, P2, P3, P1
- b. P3, P4, P3, P2, P1
- c. P3, P4, P2, P1, P3
- d. P3, P4, P2, P1

Question Completion Status:

نفس معطيات السؤال الماضي

Given the processes as described in the following:

Process	Arrival time	Burst Time
P1	3	5
P2	2	4
P3	0	7
P4	1	2

What is the process with the maximum waiting time?

- a. P3
- b. P1
- c. P4
- d. P2

QUESTION 3

نفس معطيات السؤال السابق

Given the processes as described in the following:

Process	Arrival time	Burst Time
P1	3	5
P2	2	4
P3	0	7
P4	1	2

What is the process with the minimum turnaround time?

- (•) a. P4
- ( ) b. P1
- ( ) c. P2
- ( ) d. P3

CH 8

Question 3

Page size is 1024 bytes and process size is 2050. What is the internal fragmentation?

- 1026
- 0
- 1022
- 2

⚠ Moving to another question will save this response.

Question 4

Consider a logical address space of 64 pages, and page size is 1024 mapped onto a physical memory of 32 frames.

How many bits are there in the physical address?

- 16 bits
- 10 bits
- 5 bits
- 15 bits

الجواب الصحيح 15 بدال الـ 5

⚠ Moving to another question will save this response.

Question 6

External fragmentation exists when we use

- ○ Paging
- ◉ Segmentation
- ○ --
- ○ --

Question 7

0.2 points Save Answer

Consider that PT is stored in phyiscal memory, the memory access time is 100ns and the access time to associative memory is 10ns. If the hit ratio is 80%, what is the effective access time (EAT)?

- 110ns
- 100ns
- 135ns
- 220ns

Question 8

Contiguous means that a program is loaded in:

- Many partitions
- More than one page
- Only one partition
- Several partitions

Question 9

Segment table has segment 0 with base 219 and length 600.

Determine the psychical address of the following logical address:

0, 520

- 1020
- 739
- segmentation error
- 1120

⚠ Moving to another question will save this response.

Question 10

A device to map virtual to physical addresses:

- [x] MMU
- [ ] CPU
- [ ] Cache
- [ ] Backing Store

⚠ Click **Submit** to complete this assessment.

⚠ Moving to another question will save this response.

Question 2

..... allocates the smallest hole that is big enough for a process:

- [x] Best fit
- [ ] First Fit
- [ ] Worst Fit
- [ ] Last Fit

Remaining Time: **5 minutes, 42 seconds.**

Question Completion Status:

⚠ Moving to another question will save this response.

Question 3

The user program deals with .....

- (●) logical addresses
- ( ) --
- ( ) --
- ( ) physical addresses

⚠ Moving to another question will save this response.

Moving to another question will save this response.

Question 7

Consider a logical address space of 64 pages, and page size is 1024 mapped onto a physical memory of 32 frames.

How many bits are there in the logical address?

- 10 bits
- 6 bits
- 15 bits
- 16 bits

Moving to another question will save this response.