Name: _____

Score: _____ / _____

HW7 Quiz

Part 1

1

What is a Kernel?

- A. The kernel is a component inside the operating system that runs in privileged mode — Feedback: --------
- B. The kernel includes only machine dependent software — Feedback: --------
- C. The kernel is equivalent to the operating system — Feedback: --------
- D. The kernel includes machine dependent software, as well as applications to let the user interact with the computer — Feedback: --------

Answer Point Value: 10.0 points

Answer Key: A

Correct Feedback: --------

Incorrect Feedback: --------

2

What is the purpose of a system call?

- A. Providing an interface to let user applications interact with the operating system. Feedback: --------
- B. Forcing the operating system to schedule another program in place of the current one executing. Feedback: --------
- C. Providing simple APIs to invoke library functions to ease programming effort. Feedback: --------
- D. Implementing interaction with the real hardware Feedback: --------

Answer Point Value: 10.0 points
Answer Key: A
Correct Feedback: --------
Incorrect Feedback: --------

3

The piece of code that only one thread can execute at a time is named:

- A. Mutual Exclusion Feedback: --------
- B. Critical section Feedback: --------
- C. Synchronization Feedback: --------
- D. None of them Feedback: --------

Answer Point Value: 10.0 points
Answer Key: B
Correct Feedback: --------
Incorrect Feedback: --------

4

Consider an execution with three active threads, where one thread (Thread 1) waits indefinitely for some resource and the other two threads (Threads 2 and 3) are continuously requesting and obtaining the resource. How would you define this scenario of Thread 1?

- A. Priority Inversion — Feedback: --------
- B. Deadlock — Feedback: --------
- C. Starvation — Feedback: --------
- D. Segmentation — Feedback: --------

Answer Point Value: 10.0 points
Answer Key: C
Correct Feedback: --------
Incorrect Feedback: --------

5

Which scheduler selects which processes should be brought into the ready queue?

- A. Mid-term — Feedback: --------
- B. Long-term — Feedback: --------
- C. Short-term — Feedback: --------
- D. None of them — Feedback: --------

Answer Point Value: 10.0 points
Answer Key: B
Correct Feedback: --------
Incorrect Feedback: --------

6

When implementing message-passing communication between processes, how would you implement a blocking vs non-blocking send and receive? Write an example of a process that sends and receives a message from an existing Mailbox in a blocking and non-blocking fashion.

Answer Point Value: 10.0 points
Model Short Answer: --------
Feedback: --------

7

The time required to create a new thread in an existing process is:

- A. greater than the time required to create a new process — Feedback: --------
- B. less than the time required to create a new process — Feedback: --------
- C. none of them — Feedback: --------
- D. equal to the time required to create a new process — Feedback: --------

Answer Point Value: 10.0 points
Answer Key: B
Correct Feedback: --------
Incorrect Feedback: --------

8

Consider the following code written for Linux operating system. Indicate all the correct answers (No partial credit)

```
pid = fork();
if (pid<0)
  printf("Print 1");
else if (pid == 0)
{
  if (execlp("ls","ls",NULL) < 0)
    printf("Print 2");
  printf("Print 3");
  exit(0);
}
```

- A. If "Print 1" is printed on screen, then also "Print 3" is printed on screen. Feedback: --------
- B. If "Print 2" is printed on screen, then also "Print 3" is printed on screen. Feedback: --------
- C. If "Print 1" is printed on screen, then nothing else is printed on screen. Feedback: --------
- D. "Print 3" is never printed on screen. Feedback: --------

Answer Point Value: 10.0 points
Answer Key: B,C
Correct Feedback: --------
Incorrect Feedback: --------

9

Thread synchronization is required because:

- A. all of the mentioned — Feedback: --------
- B. all threads of a process share the same address space — Feedback: --------
- C. all threads of a process can share the same files — Feedback: --------
- D. all threads of a process share the same global variables — Feedback: --------

Answer Point Value: 10.0 points
Answer Key: A
Correct Feedback: --------
Incorrect Feedback: --------

10

Which system call returns the process identifier of a terminated child?

- A. exit — Feedback: --------
- B. fork — Feedback: --------
- C. wait — Feedback: --------
- D. get — Feedback: --------

Answer Point Value: 10.0 points
Answer Key: C
Correct Feedback: --------
Incorrect Feedback: --------