

I. Multiple choices. When there are multiple correct answers, you need to select all to get full credits.

1. To ensure that an interrupted process can be resumed, which of the following information of this process must be saved before the CPU switches from this process to the interrupt handler?

_____C,D_____

- (A) values of temporary variables
- (B) values of global variables
- (C) values of general-purpose registers
- (D) value of PC (program counter)

II. Short answers questions

1. Explain these two system calls wait() and exit().

Exit- A process terminates when it finishes executing its final statement and asks the OS to detect it.

Wait- A process may return a status value to its parent process.

2. Discuss what would happens when “A child process exits when its parent is not currently executing wait().”

Zombie process- A zombie process or defunct process is a process that has completed execution but still has an entry in the process table.

III. CPU Scheduling

Consider a SMP computer composed of TWO symmetric processors. These two processors share a common set of process queues. Suppose following processes are submitted to the computer:

<u>Process</u>	<u>Arrival Time</u>	<u>Burst Time (unit)</u>
P1	0	6
P2	1	5
P3	2	5
P4	4	4
P5	5	4

Answer the following questions: If the round robin scheduling algorithm with time quantum of 3 units is used and soft affinity is required, draw the schedule charts, and answer the following question: what is the average waiting time, the average turn-around time, and the utilizations of the two CPUs? Suppose the CPUs are both idle before these processes arrive, and the context switch time is 0.1 unit.