# Section 23 Quiz 1

# CSE321 - Operating Systems
## Quiz 1
## Section 23

Date:

 Full name:                                                                    Roll:

Total Marks: 15

1. Theory questions:
   a. A process is reading data from a file. What is the STATE of this process and why?
   b. Will you be able to open a file through directly accessing the memory by yourself? Why or why not?
   c. Process 1 has a stack variable in its memory. A separate process 2 wants to access it. State the reasons if this is possible and suggest a solution if not.
   d. Describe what can happen when a parent process doesn't call wait() function and the child process terminates first.
   e. Can two child processes of the same parent process have the same value in their PC (program counter) at all times? Explain.

2. Draw the tree simulation and write the output of the following code:

```
main() {
    x = 2, y = 5;
    print(x, y);
    a = fork();
    y = y - 3;
    if (a > 0)  {
        wait(NULL);
        x = x * 3;
        b = fork();
        if (b == 0) {
            x = x - 5;
            print(x, y);
        }
    }
    else if (a == 0) {
        y = y * 2;
        print(x, y);
    }
    c = fork();
    if ( a > 0 && c == 0)
        print( "8 times\n");
}
```

# Section 24 Quiz 1

# CSE321 - Operating Systems
## Quiz 1
## Section 24

Date:

Full name:                                                          Roll:

Total Marks: 15

1. Theory questions:
    a. A child process was created and loaded into memory. What is the STATE of the child process and why?
    b. Will you be able to create a new process through directly accessing the memory by yourself? Why or why not?
    c. Process 1 has a list variable in its memory. A separate process 2 wants to access it. State the reasons if this is possible and suggest a solution if not.
    d. Describe what can happen when a parent process doesn't call wait() function and the parent process terminates first.
    e. Can a parent process and a child process have the same value in their PC (program counter) at all times? Explain.

2. Draw the tree simulation and write the output of the following code:

```
main() {
    x = 3, y = 5;
    print(x, y);
    a = fork();
    y = y + 3;
    if (a > 0)  {
        wait(NULL);
        x = x * 3;
        b = fork();
        if (b > 0) {
            x = x - 8;
            print(x, y);
        }
    }
    else if (a == 0) {
        y = y * 2;
        print(x, y);
    }
    c = fork();
    if ( a > 0 && c > 0)
        print( "8 times\n");
}
```

# Quiz 2 Section 24 Set A

# CSE321 - Operating Systems
## Quiz 1
## Section 24 (Set A)

Date:

 Full name:                                                                        Roll:

Total Marks: 15

1. Theoretical questions:
    a. How many PC, register and code will there be for four threads?
    b. What is task parallelism?
    c. What are the advantages and disadvantages of one-to-one model in multithreading?
    d. What is the use of thread_join() function?
    e. Write the problem of FCFS algorithm.

2. Simulate CPU scheduling of the following processes using SRTF on CPU burst time and Round Robin (time quantum = 2) on I/O. Also find average turnaround time, average waiting time and average response time.

| Process | CPU burst time | Arrival time | I/O |
|---------|----------------|--------------|-----|
| P1 | 9 | 1 | 4<br>[3s after total 5s CPU and 1s after total 8s CPU] |
| P2 | 10 | 2 | 4<br>[3s after total 3s CPU and 1s after total 8s CPU] |
| P3 | 13 | 0 | N/A |

# Quiz 2 Section 24 Set B

# CSE321 - Operating Systems
## Quiz 1
## Section 24 (Set B)

Date:

 Full name:                                                          Roll:

Total Marks: 15

1. Theoretical questions:
   a. How many PC, stack and code will there be for five threads?
   b. What is data parallelism?
   c. What are the advantages and disadvantages of many-to-one model in multithreading?
   d. What is the use of thread_join() function?
   e. Write the difference between SRTF and SJF algorithm.

2. Simulate CPU scheduling of the following processes using Round Robin (time quantum = 3) on CPU and FCFS on I/O. Also find average turnaround time, average waiting time and average response time.

| Process | CPU burst time | Arrival time | I/O |
|---------|----------------|--------------|-----|
| P1 | 9 | 1 | 3<br>[2s after total 5s CPU and 1s after total 8s CPU] |
| P2 | 10 | 2 | 4<br>[3s after total 3s CPU and 1s after total 8s CPU] |
| P3 | 13 | 0 | N/A |

# Quiz 2 Section 23 Set A

# CSE321 - Operating Systems
## Quiz 1
## Section 23 (Set A)

Date:

 Full name:                                                                 Roll:

Total Marks: 15

1. Theoretical questions:
    a. What is meant by bounded waiting?
    b. What is race condition?
    c. What are the advantages and disadvantages of many-to-many model in multithreading?
    d. What is the use of thread_join() function?
    e. Write the problems of Round Robin algorithm.

2. Simulate CPU scheduling of the following processes using Round Robin (time quantum = 4) on CPU and SRTF on I/O. Also find average turnaround time, average waiting time and average response time.

| Process | CPU burst time | Arrival time | I/O |
|---------|----------------|--------------|-----|
| P1 | 9 | 1 | N/A |
| P2 | 10 | 2 | 4<br>[3s after total 3s CPU and 1s after total 8s CPU] |
| P3 | 13 | 0 | 3<br>[1s after total 5s CPU and 2s after total 11s CPU] |

# Quiz 2 Section 23 Set B

# CSE321 - Operating Systems
## Quiz 1
## Section 23 (Set B)

Date:

 Full name:                                                              Roll:

Total Marks: 15

1.  Theoretical questions:
    a.  What is meant by mutual exclusion?
    b.  What should be done to avoid race condition?
    c.  What are the advantages and disadvantages of user threads?
    d.  What is the use of thread_join() function?
    e.  Write the problem and solution of Priority Scheduling algorithm.

2. Simulate CPU scheduling of the following processes using Preemptive Priority Scheduling on CPU and FCFS on I/O. Also find average turnaround time, average waiting time and average response time.

| Process | CPU burst time | Arrival time | Priority | I/O |
|---------|----------------|--------------|----------|-----|
| P1 | 9 | 1 | 3 | 4<br>[1s after total 5s CPU and 3s after total 7s CPU] |
| P2 | 10 | 2 | 1 | 4<br>[3s after total 3s CPU and 1s after total 8s CPU] |
| P3 | 13 | 0 | 8 | N/A |