National University

of Computer & Emerging Sciences-Faisalabad

Operating Systems

Quiz NO. 1

(Time Allowed = 30 minutes)

Question 1: (7 marks)

- Develop a stopwatch with lap counter and total time calculator.
- The program will create **two processes** and they will start calculating time.
- One process will be used to calculate total time and the other will calculate lap time.
- The total time calculator process will keep on calculating time until required laps are completed.
- In the lap time calculator process, when it reaches lap time limit, the process will **display lap number** and set its counter to zero and start calculating again.
- Take **input of lap time** and **number of laps** from the **user via command line arguments**.
- At the end, display **total time** from total time calculator process in **hours/minutes/seconds format**.
- Every process should also print its **ID** before performing any calculation.
- After all the working, parent process creates a **3rd process** that prints your **Name** and **Roll Number** with its **PID**.

Note: You can use sleep(*seconds*) for time calculation.

Question 2: (3 marks)

- How many number of processes will be created in the following program? Also draw a process tree to prove your answer.

(Use a separate page for this answer and write roll number, section and name.)

```
int main(){

    fork();
    fork();
    fork();
    fork();

    exit(1);

    fork();

    return 0;
}
```