

**EAST WEST UNIVERSITY****Department of Computer Science and Engineering****B.Sc. in Computer Science and Engineering Program****Lab Exam, Spring 2021 Semester**

Course: CSE 325 Operating Systems
Instructor: Masiath Mubassira, Lecturer, CSE Department
Full Marks: 20(10 marks will be counted for final grading)
Time: 1 Hour

Note: There are TWO questions, answer ALL of them. Mark of each question are mentioned at the right margin.

1	<p>Three processes are involved in printing a file (pictured below). Process A reads the file data from the disk to Buffer 1, Process B copies the data from Buffer 1 to Buffer 2, finally Process C takes the data from Buffer 2 and print it.</p> <pre> Process A ----- Process B ----- Process C -----> Buffer 1 -----> Buffer 2 -----> Read from File ----- copy ----- print </pre> <p>Assume all three processes operate on one (file) record at a time, both buffers' capacity are one record. Write a program to coordinate the three processes using semaphores.</p>	(10)
2	<p>Write a code that prints "Are Roses Red?" in console. Your code should have 5 threads.</p> <p>Thread one will print: "Are"</p> <p>Thread two will print: "Roses"</p> <p>Thread three will print: "Red"</p> <p>Thread four will print: "?"</p> <p>And thread 5 will print all necessary spaces.</p> <p>[You will need semaphore for proper synchronization]</p>	(10)