**Course: - Operating System (Final Lab Practical Exam)**

**Class: - 4rth Semester (Computer-2019) Total Time: 3 Hr 15 Mins**

**Maximum Marks: - 50 Dated: 9th July, 2021 Attempt all questions.**

Do your own work. If two solutions are found similar, no credit will be allocated to any of the students. Write to the point answer of the following question.

**Hand written and Email at labquiz20@gmail.com**

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| **Q1: (2+2+2+2+2+3=13)**  **Consider the following system snapshot using the data structures in the Banker's Algorithm, with resources and processes P0 to P3:**  **Four processes: p0, p1, p2, p3**  **allocation = ABC DE request = ABC DE available=ABC DE**  **p0 1 0 1 1 0 0 1 0 0 1 0 0 0 0 1**  **p1 1 1 0 0 0 0 0 1 0 1**  **p2 0 0 0 1 0 0 0 0 0 1**  **p3 0 0 0 0 0 1 0 1 0 1**  **Answer the following questions using banker’s algorithm:**   1. **Need matrix?** 2. **Total Number of resource?** 3. **Resource types?** 4. **The system is in a safe state or unsafe state?** 5. **Can request for (1,1,0,0,0) by P2 be granted?** 6. **Can request for (0,1,0,1,0) by P0 be granted?** | **CLO2** | **P3/**  **C2** |
| **Q2:**  **(2+2+2+3+2=11)**  **Consider the following set of processes, with the length of the CPU-burst time given in milliseconds:**  **Process Burst Time (ms) Priority**  **P1 11 3**  **P2 30 1**  **P3 4 3**  **P4 8 4**  **P5 13 2**  **The processes are arrived in the order P1, P2, P3, P4, P5, ALL AT TIME 0.**   1. **All the following 5 processes arrive at time 0, in the order given the burst time are as follows. Consider the FCFS, SJF (non-preemptive) and RR (quantum = 8.5ms) scheduling algorithms for the set of processes.** 2. **What is the turnaround time of each process for each of the scheduling algorithms in part a?** 3. **What is the waiting time of each process for each of the scheduling algorithms in part a?** 4. **Which of the algorithms results in the minimum average waiting time (over all processes)?** 5. **Differentiate between pre-emptive and non-pre-emptive scheduling. Examples?** | **CLO2** | **P3/**  **C2** |
| **Q3: (4+3+3=10)**  **Consider a user program of logical address of size 6 pages and page size is 4 bytes. The physical address contains 300 frames.** **The user program consists of 22 instructions a, b, c, . . . u, v .** **Each instruction takes 1 byte. Assume at that time the free frames are 7, 26, 52, 20, 55, 6, 18, 21, 70, and 90. Find the following?**  **A) Draw the logical and physical maps and page tables?**  **B) Allocate each page in the corresponding frame?**  **C) Find the physical addresses for the instructions m, d, v, r?**  **Q4: ViVa (5+3+3+3+2=16)** | **CLO3** | **P3/**  **C2** |

**BEST OF LUCK!**