GUJARAT TECHNOLOGICAL UNIVERSITY
BVOC - SEMESTER I – EXAMINATION – WINTER 2021

Subject Code:21110204   **Date:23/03/2022**
Subject Name:Operating System
Time:10:30 AM TO 12:30 PM   **Total Marks:50**
Instructions:
1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**
4. **Simple and non-programmable scientific calculators are allowed.**

			Marks
Q.1	**(a)**	Enlist the various types of operating system and explain any two types of operating system in brief.	**05**
	(b)	What do you mean by system software? Differentiate between compiler and interpreter.	**05**
Q.2	**(a)**	Explain concept of virtual memory with example.	**05**
	(b)	Draw and explain five state process model in detail.	**05**
		OR	
	(b)	Differentiate between process and thread. Explain Process model with suitable diagram.	**05**
Q.3	**(a)**	What is Inter process communication? Explain issues related to IPC.	**05**
	(b)	Consider the processes P1, P2, P3, P4 given in the below table, arrives for execution in the same order, with arrival time 0, and given burst time, draw GANTT chart using the FCFS and Shortest Job First scheduling algorithm. Analyze and evaluate the performance of both algorithms using the average waiting time and turnaround time.	**05**

Process	Burst Time
P1	21
P2	3
P3	6
P4	2

OR

Q.3	**(a)**	What do you mean by Race condition? Explain the critical section with an example.	**05**
	(b)	Consider Five Processes P1 to P5 arrived at same time. They have estimated running time 10,2,6,8 and 4 seconds, respectively. Their Priorities are 3,2,5,4 and 1, respectively with 5 being highest Priority. Evaluate and analyze using average turnaround time and average waiting time for Round Robin (q=3) and Priority Scheduling algorithm.	**05**
Q.4	**(a)**	Consider page reference string 1, 3, 0, 3, 5, 6 with 3 page frames. Find number of page faults for FIFO and LRU page replacement algorithm. Analyze the performance of both the algorithm.	**05**
	(b)	Explain the concept of directory structure in UNIX. Briefly explain file protection.	**05**

OR

Q.4 **(a)** Consider the page reference string 7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2 with 4 page frames. Find number of page faults using FCFS and Optimal page replacement algorithm to compare and analyze their performance. **05**

(b) Explain various file attributes and file operations in brief. **05**

Q.5 **(a)** Explain the following Unix commands with example: **05**
rmdir, ls, man, ps, kill

(b) How to perform "Disk cleanup" and "Disk Defragmenter" in operating system? **05**

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OR

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Q.5 **(a)** Differentiate between IOS and android OS. **05**

(b) Explain antivirus as the utility software with an example. **05**

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