Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–IV(NEW) – EXAMINATION – SUMMER 2019

Subject Code:2140702 Date:20/05/2019

Subject Name: Operating System

Time:02:30 PM TO 05:00 PM Total Marks: 70

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks**

Q-1	**(A)**	What is Operating System? explain any one types of operating system	**3**
	(B)	Explain different states of a process with a suitable diagram	**4**
	(C)	Explain the microkernel system architecture in detail.	**7**
Q-2	**(A)**	Explain the features of time sharing system	**3**
	(B)	Explain process model in brief.	**4**
	(C)	What is thread? Explain thread Structure? And explain any one type of thread in details.	**7**
		OR	
	(C)	Explain Round Robin algorithm with proper example.	**7**
Q-3	**(A)**	Explain context switching.	**3**
	(B)	What it priority inversion problem in inter process communication? How to solve it?	**4**
	(C)	Explain SJF process scheduling algorithm with example	**7**
		OR	
Q-3	**(A)**	Define the following term. 1) Critical Section 2) Waiting Time 3) Race condition	**3**
	(B)	Briefly describe SCAN	**4**
	(C)	How does a parent process create a child process? How does a parent process create an ordinary pipe (anonymous pipe) for communicating with child process? Write the steps.	**7**
Q-4	**(A)**	What are system calls? What is application programming interface?	**3**
	(B)	Which schedules algorithm result in starvation?	**4**
	(C)	Explain the use of Banker's algorithm for multiple resources for deadlock avoidance with illustration	**7**
		OR	
Q-4	**(A)**	Which three are Page Replacement Algorithms? Discuss it in terms of page faults.	**3**
	(B)	What is I-node? Explain in detail.	**4**
	(C)	Which are the necessary conditions for Deadlock? Explain Deadlock recovery in brief.	**7**
Q-5	**(A)**	Write a Shell Script to find largest among the 3 given number.	**3**
	(B)	What is RAID? Explain in brief	**4**
	(C)	Explain the following commands in UNIX: suid, wall, man, finger, ls, cat, ps	**7**
		OR	
Q-5	**(A)**	What is called segmentation? How it differs from paging?	**3**
	(B)	What is the access control list? Explain in brief.	**4**
	(C)	What is Paging? What is Page Table? Explain the conversion of Virtual Address to Physical Address in Paging with example.	**7**