

Enrolment No./Seat No _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-IV EXAMINATION – SUMMER 2025

Subject Code:3141601

Date:08-05-2025

Subject Name:Operating System and Virtualization

Time:10:30 AM TO 01:00 PM

Total Marks:70

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) Define operating system? Give the view of OS as a resource manager.	03
	(b) Give the difference between process and thread.	04
	(c) Explain different types of operating system.	07
Q.2	(a) What is the kernel in OS?	03
	(b) How OS perform the context switch?	04
	(c) What is race condition? Explain mutual exclusion.	07
	OR	
	(c) Draw and explain five state process diagram.	07
Q.3	(a) Explain scheduler and dispatcher in brief.	03
	(b) List and explain various process scheduling criteria.	04
	(c) Explain preemptive SJF and RR process scheduling algorithms with suitable example.	07
	OR	
Q.3	(a) What is busy waiting? Explain it.	03
	(b) Explain LOCK variable for mutual exclusion.	04
	(c) What is dead lock? Explain deadlock prevention.	07
Q.4	(a) Explain first fit, worst fit and best fit.	03
	(b) Explain inverted page table.	04
	(c) Explain various memory allocation scheme in OS.	07
	OR	
Q.4	(a) Explain virtual memory.	03
	(b) What is page fault? How to handle it?	04
	(c) Explain various page replacement algorithms with example.	07
Q.5	(a) Explain grep, cat, and sort commands in Linux.	03
	(b) Write a shell script to find the larger number from three numbers.	04
	(c) Explain FCFS, SSTF, SCAN and LOOK disk scheduling algorithms with suitable example.	07
	OR	
Q.5	(a) What is virtualization? List the types of virtualization techniques.	03
	(b) Explain VMware server.	04
	(c) Write a shell script to check given number is odd or even.	07
