

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-IV (NEW) EXAMINATION – SUMMER 2022****Subject Code:3140702****Date:23-06-2022****Subject Name:Operating System****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) List any four functions of operating system?	03
(b) Explain the essential properties of <ol style="list-style-type: none"> i) Batch system ii) Time sharing iii) Real time iv) Distribute 	04
(c) Explain process states and process control block in details.	07
Q.2 (a) What are the various criteria for a good process scheduling algorithm?	03
(b) What is thread? Explain classical thread model.	04
(c) How semaphores can be used to deal with n-process critical section problem? Explain.	07
OR	
(c) What is monitor? Explain solution for producer-consumer problem using monitor.	07
Q.3 (a) Define preemption and nonpreemption.	03
(b) Explain the terms related to IPC: <ol style="list-style-type: none"> i) Race condition ii) Critical section iii) Mutual exclusion iv) Semaphores 	04
(c) How does deadlock avoidance differ from deadlock prevention? Write about deadlock avoidance algorithm in detail.	07
OR	
Q.3 (a) Give the Difference between Thread and Process.	03
(b) Explain the Priority scheduling algorithm.	04
(c) How to characterize the structure of deadlock? Explain the two solutions of recovery from deadlock.	07
Q.4 (a) List out the seven RAID levels.	03
(b) Write short note on: Relocation problem for multiprogramming with fixed partitions.	04
(c) What is paging? Discuss basic paging technique in details.	07
OR	
Q.4 (a) What is the difference between logical I/O and device I/O?	03
(b) Write the first, best fit memory allocation techniques.	04
(c) Define Virtual Memory. Explain the process of converting virtual addresses to physical addresses with a neat diagram.	07
Q.5 (a) Explain access control list.	03
(b) Differentiate between Windows and Linux file system.	04
(c) Write about Least Recently Used page replacement algorithm all its variants with an example.	07

OR

- Q.5** (a) Explain domain protection mechanism. **03**
(b) Write a short note: Unix kernel. **04**
(c) Describe in detail about variety of techniques used to improve the efficiency and performance of secondary storage. **07**
