

GUJARAT TECHNOLOGICAL UNIVERSITY**ME – SEMESTER –I-(New) EXAMINATION – SUMMER 2019****Subject Code: 3710218****Date: 10/05/2019****Subject Name: Operating System Design****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) Define distributed operating system. Explain its design issues. **07**
 (b) What do you mean by system call? Explain fork () system call to create new process in UNIX OS. **07**
- Q.2** (a) What is Deadlock? When it occurs? How to recover from it. **07**
 (b) What is process abstraction and process management? Explain in detail. **07**
- OR**
- (b) What is Monitor IPC? Solve the Bounded Buffer problem using Monitor. **07**
- Q.3** (a) Explain multilevel queue scheduling and multilevel feedback scheduling algorithm. **07**
 (b) What is Semaphore? How can we achieve the synchronization using semaphore for producer – consumer problem? **07**
- OR**
- Q.3** (a) What is the dispatch latency? How to keep it low? Describe the make – up of dispatch latency. **07**
 (b) Discuss the Peterson’s solution for the race condition with algorithm. **07**
- Q.4** (a) Explain Virtual Memory Management and list & explain all Page replacement algorithms. **07**
 (b) Disk requests come into the disk for cylinders 10, 22,20,2,40,6 and 38. A seek takes 6 msec per cylinder move. How much seek time is for closest cylinder next algorithm? Initially arm is at cylinder 20. **07**
- OR**
- Q.4** (a) Draw the block diagram for DMA. Explain the steps for DMA data transfer. **07**
 (b) Describe various file organization techniques. **07**
- Q.5** (a) Discuss various security threats in file system of Operating System. **07**
 (b) Explain in detail RAID level system. **07**
- OR**
- Q.5** (a) Explain the difference between Security and Protection. And also explain Lampson's Access Matrix **07**
 (b) What are the uses of device driver and controller in OS? Explain. **07**
