

GUJARAT TECHNOLOGICAL UNIVERSITY**ME – SEMESTER – I (New)– EXAMINATION – WINTER-2019****Subject Code: 3710218****Date: 09-01-2020****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) Explain different types of Advanced OS and also Explain different types of tasks done by OS. **07**
 (b) What is system call? Explain steps for system call execution. **07**
- Q.2** (a) What is Semaphore? Give the implementation of Bounded Buffer Producer Consumer Problem using Semaphore. **07**
 (b) Explain Context Switching. Discuss performance evaluation of FCFS (First Come First Serve) & RR (Round Robin) scheduling. **07**
- OR**
- (b) Explain IPC Problem – Dining Philosopher Problem. **07**
- Q.3** (a) What is process abstraction and process management? Explain in detail **07**
 (b) List the different file implementation methods and explain them in detail. **07**
- OR**
- Q.3** (a) Suppose Disk drive has 300 cylinders. The current position of head is 90. The queue of pending request is 36,79,15,120,199,270,89,170. Calculate head movement for the following algorithms.
 1. FCFS 2. SSTF **07**
 (b) List out the various security goals and explain Trust model & Threat Model **07**
- Q.4** (a) Explain Architecture and design issues of Distributed OS. **07**
 (b) Explain Fault Tolerance and Reliability in terms of Multiprocessor operating systems. **07**
- OR**
- Q.4** (a) What is Protection System? Explain Lampson's Access Matrix with example. **07**
 (b) Explain Process synchronization in Multiprocessor operating systems. **07**
- Q.5** (a) How deadlock can be prevented? Explain any two ways of doing deadlock prevention. **07**
 (b) Explain the concept of virtual memory also explain various page replacement algorithms **07**
- OR**
- Q.5** (a) Explain Recent trends in Operating system design and their applicability to HPC. **07**
 (b) Explaining Thrashing in Distributed Shared Memory. **07**
