

**GUJARAT TECHNOLOGICAL UNIVERSITY**

BE - SEMESTER-IV (OLD) EXAMINATION – WINTER 2018

**Subject Code:140702****Date: 10/12/2018****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? Give the view of OS as Resource Manager. **07**  
(b) What is deadlock? Explain the Banker's algorithm for deadlock avoidance. **07**
- Q.2** (a) What is context switching? Explain significance and elements of PCB. **07**  
(b) Write short notes on following **07**  
(i) Contiguous Allocation and Linked List Allocation for File System Implementation.  
(ii) File Types and File Access (sequential access and random access).
- OR**
- (b) What is Semaphore? Give the implementation of Bounded Buffer Producer Consumer Problem using Semaphore. **07**
- Q.3** (a) Explain various Disk Arm Scheduling Algorithms with illustration. **07**  
(b) Explain IPC Problem –Dining Philosopher Problem. **07**
- OR**
- Q.3** (a) What is critical section? What is Mutual exclusion? Explain Peterson's solution for mutual exclusion problem. **07**  
(b) Explain various file attributes and file operations in brief. **07**
- Q.4** (a) Explain the various page replacement strategies. **07**  
(b) Explain the following terms: **07**  
Process, Multithreading, Multitasking, Mutual Exclusion, Turnaround Time, Response Time, Virtual Memory
- OR**
- Q.4** (a) Explain FCFS and Round Robin process scheduling algorithm with example. **07**  
(b) Explain the followings: **07**  
Use of "inode" in UNIX File System,  
Direct Memory Access.
- Q.5** (a) Explain different types of operating system. **07**  
(b) What is scheduler? Explain queuing diagram representation of process scheduler with figure. **07**
- OR**
- Q.5** (a) What is Paging? What is Page Table? Explain the conversion of Virtual Address to Physical Address in Paging with example. **07**  
(b) Explain the following commands in UNIX: **07**  
grep, who, man, finger, ls, cat, ps

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