

Seat No.: \_\_\_\_\_

Enrolment No. \_\_\_\_\_

## GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VI (OLD) - EXAMINATION – SUMMER 2017

Subject Code: 163101

Date: 03/05/2017

Subject Name: Operating System Design

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.

- Q.1** (a) Explain various data structures related to process subsystem and file subsystem. **07**  
(b) Explain Process State Transition Diagram in detail. **07**
- Q.2** (a) What is File System? Explain Structure of File System. **07**  
(b) Explain context of a process with its components. **07**
- OR**
- (b) Explain following: Inode and Processor Execution Levels. **07**
- Q.3** (a) Explain algorithm for Buffer Allocation (getblk ()). **07**  
(b) Explain algorithm for allocation of in-core Inodes (iget ()). **07**
- OR**
- Q.3** (a) Explain algorithm for Block Read Ahead (breada ()). **07**  
(b) Explain algorithm for release access to in-core Inode (iput ()). **07**
- Q.4** (a) Explain DUP system call in detail. **07**  
(b) Explain algorithm for changing directory (chdir ()). **07**
- OR**
- Q.4** (a) Explain Pipe system call in detail. **07**  
(b) Explain algorithm for opening a file (open ()). **07**
- Q.5** (a) What are Signals? Explain handling of Signals by kernel. **07**  
(b) Explain Sleep algorithm. **07**
- OR**
- Q.5** (a) Explain Fork system call in detail. **07**  
(b) Explain algorithm for Allocating a Region (allocreg ()). **07**

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