

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE- VI<sup>th</sup> SEMESTER-EXAMINATION – MAY- 2012****Subject code: 163101****Date: 22/05/2012****Subject Name: Operating System Design****Time: 10:30 am – 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 different types of tasks done by OS . Also Explain Unix Kernel Architecture. **07**
- (b) What is process ? What are the different type of states of process? Explain PCB in detail. How Process is different from program? **07**
- Q.2** (a) Explain Unix OS file system. Give name of Data structure used in Unix file System. Explain i-node in detail. **07**
- (b) What is system calls? What is interrupt? How it is handled by OS? **07**
- OR
- (b) Explain: Shell , Boot and init Process **07**
- Q.3** (a) Explain : Critical region , Race condition , Deadlock prevention **07**
- (b) Explain Mounting and Un mounting of File System. **07**
- OR
- Q.3** (a) Peterson's solution for mutual exclusion problem. **07**
- (b) What is Pipes? Explain Different types of pipes in Unix OS. **07**
- Q.4** (a) What is buffer cache? Explain Scenarios for retrieval of buffer. **07**
- (b) How to implement security in Unix file system? Explain **07**
- OR
- Q.4** (a) Explain : Link and Unlink in Unix OS. **07**
- (b) What is Context? Explain Process executing in kernel mode. **07**
- Q.5** (a) Explain following Unix Command: ls , mkdir , chmod , kill **07**
- (b) Explain : Read( ) system call in detail. **07**
- OR
- Q.5** (a) Explain Role of Signals in OS. **07**
- (b) Explain : Write( ) system call in detail. **07**

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