

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**MCA - SEMESTER- III • EXAMINATION – WINTER 2017**

**Subject Code: 630004**

**Date: 02-01-2018**

**Subject Name: Operating Systems**

**Time: 10:30 am to 1:30 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? List functions and objectives of an Operating systems. 07  
(b) Discuss Seven state Process Model. 07
- Q.2** (a) What is Deadlock? Discuss necessary conditions of Deadlock. 07  
(b) Describe in brief ULT and KLT with its advantages. 07
- OR**
- (b) What is thread? List advantages and uses of thread. 07
- Q.3** (a) Explain in brief Fixed and dynamic partitioning with advantages and disadvantages. 07  
(b) Describe Thrashing. What is importance of Translation Lookaside Buffer? 07
- OR**
- Q.3** (a) Explain the buddy system with proper example. 07  
(b) What is Paging? Explain how Logical to Physical Address Translation takes place. 07
- Q.4** (a) Define Cache memory. Explain the design aspect of cache memory. 07  
(b) What is semaphore? Discuss Producer/Consumer problem using bounded buffer. 07
- OR**
- Q.4** (a) Explain in brief Reader/Writer Problem. 07  
(b) Compare in brief FCFS and RR scheduling algorithm. 07
- Q.5** (a) Explain the file and directory management of UNIX. 07  
(b) Write short Note: 07  
    i) RAID,  
    ii) Gang Scheduling
- OR**
- Q.5** (a) Explain in brief Chained and indexed allocation for file. 07  
(b) What is clustering? Discuss advantages of clustering. List methods for clustering. 07

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