

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-IV EXAMINATION – SUMMER 2016

Subject Code:140702

Date:06/06/2016

Subject Name:Operating System

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) Define operating system. List and explain its types in brief. **07**
(b) List the advantages of UNIX/LINUX over Windows O.S. **07**
- Q.2** (a) What is a process? Draw and explain process state diagram for FIVE states. **07**
(b) Define Deadlock. Explain how it causes issues for the system for resource sharing. **07**
- OR**
- (b) What is a Race Condition? Explain Peterson's solution for it. **07**
- Q.3** (a) What is a critical region? Explain its importance for processes. **07**
(b) What is a Thread? Explain the classical thread model with its implementation strategies. **07**
- OR**
- Q.3** (a) Explain how Banker's algorithm takes care of single and multiple resources. **07**
(b) What is Semaphore? How can we achieve the synchronization using it? **07**
- Q.4** (a) Explain context switching. Compare FCFS and RR scheduling techniques. **07**
(b) What is DMA? Explain the role of DMA controller for transferring data. **07**
- OR**
- Q.4** (a) Describe the role of Virtual memory. Explain its mapping through MMU. **07**
(b) How paging is useful in memory management? Explain with example. **07**
- Q.5** (a) Explain the Least Recently Used page replacement algorithm. **07**
(b) Write a shell script to create a menu for basic arithmetic operations. **07**
- OR**
- Q.5** (a) Discuss the characteristics of distributed operating system. Differentiate it with conventional O.S. **07**
(b) Write a shell script to display current month calendar. **07**
