

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
