

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-IV EXAMINATION – SUMMER 2015

Subject Code: 140702

Date: 03/06/2015

Subject Name: Operating System

Time: 10.30am-01.00pm

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 an operating system? List the types of operating system and explain in brief. **07**
- (b) Differentiate process and thread. How do you create and terminate the process? Draw a diagram which indicates the state of processes. **07**
- Q.2** (a) What is race condition? Explain the producer -consumer problem with a fatal race condition. **07**
- (b) Explain readers and writers problem with solution. **07**
- OR**
- (b) Which conditions must hold for resource deadlock? Explain any one method to avoid dead lock. **07**
- Q.3** (a) Explain the differences between deadlock, live lock and starvation. Give an example of deadlock detection. **07**
- (b) Compare concept of paging and segmentation with suitable example. **07**
- OR**
- Q.3** (a) Explain FIFO and LRU page replacement algorithm in detail. **07**
- (b) Write short note on File Allocation Table and I-node. **07**
- Q.4** (a) Explain concept of virtual memory and paging with example. **07**
- (b) List and explain the attributes and operations you can perform on the file. **07**
- OR**
- Q.4** (a) Draw a diagram of Direct Memory Access and explain its operation. **07**
- (b) Write short note on single-bus and dual-bus memory architecture. **07**
- Q.5** (a) Explain elevator algorithm for scheduling disk requests. **07**
- (b) Write short note on algorithm which deals with multiple resource allocation. **07**
- OR**
- Q.5** (a) Which are the ways for the user authentication? Explain each in brief. **07**
- (b) What is shell in Linux/Unix ? Explain the use of following command. **07**
- cp ,grep, head, sort, wc, rm
