

GUJARAT TECHNOLOGICAL UNIVERSITY
MCA Integrated – SEMESTER IV – EXAMINATION – SUMMER 2017

Subject Code: 4440603

Date: 11-05-2017

Subject Name: Operating System

Time: 10:30 to 1:00 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 any 7 terms (7)
1. Data Integrity
 2. Dispatcher
 3. Thread
 4. Critical Section
 5. Race Condition
 6. No Preemption
 7. Segment in Memory Management
 8. Turnaround time
 9. Granularity
 10. Middleware
- Q.2 (b)** What is Operating system? Explain in brief objectives and functions of OS. (7)
- Q.2 (a)** i) Define Multithreading with example. (3)
ii) Write four differences between process and thread. (4)
- (b)** What is process? Explain the process state transition diagram with suspend state. (7)
- OR**
- (b)** What is multithreading? Explain in brief KLT and ULT with its advantages and disadvantages. (7)
- Q.3 (a)** State Producer/Consumer problem. How it is different from Readers/Writer problem. (7)
- (b)** i) Discuss 4 necessary conditions for deadlock. (2)
ii) Explain in brief Deadlock avoidance with its advantages and disadvantages (5)
- OR**
- Q.3 (a)** What is semaphore? Give and explain the algorithm of producer/consumer problem with bounded using general semaphore. (7)
- (b)** i) Give examples of reusable and consumable resources. (3)
ii) List two ways in which the No-preemption condition can be prevented. (4)
- Q.4 (a)** What is segmentation? How it differs with paging? Explain address translation in segmentation with paging. (7)
- (b)** Describe FCFS, RR, SPN, SRT, HRRN, Feedback and Fair-share scheduling methods briefly (7)
- OR**
- Q.4 (a)** Define virtual memory. Compare LRU, FIFO and Clock page replacement policies with suitable example. (7)
- (b)** Write short note: (7)
i) Gang Scheduling
ii) SCAN and FIFO Disk Scheduling algorithm
- Q.5 (a)** How do you classify the different approaches for Real-time scheduling? State various Real-time scheduling techniques available and discuss any one in detail. (7)

- (b) Name the File allocation methods available in File Management. Explain in detail all methods. (7)

OR

- Q.5** (a) Explain RAID and its level 0-6 in detail. (7)
(b) Define client server computing and explain the classes of client server applications and compare it with three tire architecture. (7)
