

GUJARAT TECHNOLOGICAL UNIVERSITY
MCA– SEMESTER –II EXAMINATION –SUMMER-2019

Subject Code:3620003**Date: 20-05-2019****Subject Name: Operating Systems****Time:10.30 am 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 the term. **07**
1. Thread.
 2. Access time.
 3. Fragmentation.
 4. Scheduling.
 5. Cache memory.
 6. Multiprocessing.
 7. Middleware.
- (b)** Do as directed. **07**
1. Deadlock can occur without circular wait condition.(TRUE/FALSE).
 2. The address of a page table in memory is pointed by page table base register. (TRUE/FALSE).
 3. PCB stands for _____.
 4. List any two reasons for process termination.
 5. What is mutual exclusion?
 6. The size of all the segments are same within a process. (TRUE/FALSE).
 7. List any two preemptive scheduling policy.
- Q.2 (a)** What is memory partition? Explain static memory partitioning technique with diagram. **07**
- (b)** What is multithreading? Explain in brief ULT and KLT with its advantages and disadvantages. **07**
- OR**
- (b)** Discuss dining philosopher problem with semaphore. **07**
- Q.3 (a)** Write a short note on Banker's Algorithm with suitable example. **07**
- (b)** What is page replacement? Explain optimal and FIFO page replacement policy for the following page stream. **07**
- The page address stream is as below
2 3 2 1 5 2 4 5 3 2 5 2
- OR**
- Q.3 (a)** Define the term Deadlock. Discuss the necessary and sufficient conditions for a Deadlock to occur. State the general approaches to deal with Deadlock situation. **07**
- (b)** Define operating system. What are the objectives and functions of an operating system? **07**
- Q.4 (a)** What is process scheduling? Explain round robin policy with processor time quantum = 4. **07**

Process scheduling example

Process	Arrival time	Service time
A	0	3
B	2	6
C	4	4
D	6	5
E	8	2

(b) Explain RAID and its level 0-6 in detail. **07**

OR

Q.4 (a) What is segmentation? How it differs from paging? Explain address translation with segmentation. **07**

(b) What is I/O Communication? Explain I/O Communication Techniques in detail. **07**

Q.5 (a) What is file? Explain various file allocation methods on secondary storage. **07**

(b) Explain 5 state process model with diagram. **07**

OR

Q.5 (a) i) Explain two types of resources with example. **03**

ii) Explain resident set management policy. **04**

(b) What is disk scheduling? Explain any two disk scheduling with example. **07**

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