

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
MCA - SEMESTER- III • EXAMINATION – SUMMER - 2016

Subject Code:2630004

Date:26/05/2016

Subject Name: Operating Systems

Time:02.30 PM TO 05.00 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)** i) What is PCB? List content of PCB. **04**
ii) Define (ANY THREE) **03**
a) Process
b) Thrashing
c) JCL
d) TLB

- (b)** Draw the standard seven state transition diagram. Briefly define each state. **07**
Q.2 (a) i) Why Dynamic partitioning leaves smaller internal fragments than fixed partitioning? **03**
ii) Why Best fit algorithm leaves smaller memory holes than first-fit? **02**
iii) How does page size optimize system performance? **02**

- (b)** i) Apply First come first Serve and Shortest Process Next scheduling algorithm for following set of processes and calculate turnaround time. **04**

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

- ii) Which algorithm is better for smaller jobs, SPN or FCFS?, Why ? **03**

OR

- (b)** What is Time slicing? Discuss Round Robin (RR) scheduling algorithm. What is the importance of quantum in RR? **07**

- Q.3 (a)** Explain Address translation using paging/segmentation. **07**

- (b)** i) Write short Note: **07**
i) Buddy System
ii) Counting Semaphore and Binary Semaphore

OR

- Q.3 (a)** List and Discuss various methods for secondary storage management. **07**

- (b)** Explain Kernel Level thread. Why it is better than User Level Thread (ULT)? **07**

- Q.4 (a)** Explain Producer / Consumer problem using finite buffer. **07**

- (b)** Discuss OPT, LRU and FIFO Page replacement algorithms. **07**

OR

- Q.4 (a)** Explain Deadlock and its conditions. **07**

- (b)** What is Deadline scheduling? What types of information are used in dead line scheduling. **07**

- Q.5 (a)** What is cluster? Discuss clustering methods with its advantages and dis-advantages **07**
- (b)** i) Explain FIFO and SCAN disk scheduling algorithm. **04**
- ii) Compare Fixed Length, variable length un-spanned and variable length spanned record blocking. **03**
- OR**
- Q.5 (a)** List and explain seven levels of RAID. **07**
- (b)** i) Discuss Role of middleware. **04**
- ii) Discuss characteristics of Fat and Thin Clients **03**
