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**

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