Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–IV(OLD) • EXAMINATION – WINTER 2016

Subject Code: 140702 Date:23/11/2016

Subject Name: Operating System

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)**	Define and Explain following terms: (i) Process (ii) Mutual Exclusion (iii) Scheduler (iv) Segmentation	**07**
	(b)	What is PCB? Explain its fields.	**07**
Q.2	**(a)**	What is deadlock? List the conditions that lead to deadlock. How deadlock can be prevented?	**07**
	(b)	Explain thread implementation with user's space with its advantages and disadvantages.	**07**
		OR	
	(b)	Explain virtual memory and paging with example.	**07**
Q.3	**(a)**	Explain different states of a process with suitable diagram.	**07**
	(b)	(i) What is segmentation? How it is different from paging? (ii) What is device driver? Explain its functions in brief?	**03** **04**
		OR	
Q.3	**(a)**	Explain SSTF and LOOK disk scheduling algorithms with examples.	**07**
	(b)	Explain threads in brief with its types. Explain multithreading with example.	**07**
Q.4	**(a)**	Explain the following allocations algorithms: (i) First-fit (ii) Best-fit (iii) Worst-fit	**07**
	(b)	Explain UMA and NUMA multiprocessors.	**07**
		OR	
Q.4	**(a)**	Explain context switching. Discuss performance evaluation of FCFS (First Come First Served) and RR (Round Robin) Scheduling.	**07**
	(b)	What is race condition? Explain producer – consumer problem with fatal race condition.	**07**
Q.5	**(a)**	Explain Linux kernel and its functions.	**07**
	(b)	Explain Trojan Horse and Trap Doors program threads.	**07**
		OR	
Q.5	**(a)**	What is shell in Linux? Explain the following commands: (i) finger (ii) grep (iii) chmod (iv) head (v) cut (vi) wc	**07**
	(b)	Explain swapping in detail.	**07**

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