Reg. No.										

Manipal Institute of Technology, Manipal

(A Constituent Institute of Manipal University)

V SEMESTER B.TECH (COMPUTER SCIENCE AND ENGINEERING)

END SEMESTER EXAMINATIONS, Dec 2015/Jan 2016

SUBJECT: OPERATING SYSTEM & LINUX [CSE 309]

REVISED CREDIT SYSTEM

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

- Answer **ANY FIVE FULL** questions.
- Missing data, if any, may be suitably assumed.

1A. Define OS. Discuss its role from System and User View perspectives 3M

1B. What do you mean by PCB? Where is it used? What are its contents? Explain. 3M

1C. Explain DIRECT and INDIRECT Communications of Message Passing Systems (MPS). 4M

2A.(i) Explain MANY-To-ONE and ONE-TO-ONE Multithreaded Models with their Advantages and Disadvantages. 2M

(ii) Explain ZERO-FILL-ON DEMAND 2M

2B. Explain the concept of THREAD LIBRARIES. What are the two ways of implementing them. 2M

2C. (i) Explain the working of UPCALL when an application is about to BLOCK 3M

(ii) Explain HASHED PAGE TABLEs 1M

3A.Explain MEMORY MAPPED FILES with help of a neat Diagram 3M

3B. Compare DEMAND PAGING and SEGMENTATION(list out any 6 differences) 3M

3C. (i) Consider the reference stream 1,2,3,4,2,1,5,6,2,1,2,3,7,6,3,2,1,2,3,6. How many PAGE FAULTS occur while using FCFS and LRU with 5 FRAMES? 2M

(ii) Explain COPY-ON-WRITE 2M

4A.(i) Write an Algorithm for BOUNDED–WAITING with MUTUAL EXCLUSION with TestAndSet() 2M

(ii) Explain RESOURCE REQUEST ALGORITHM 2M

4B. Explain DYNAMIC LOADING 2M

4C. (i) Explain briefly what do you mean by Deadlock Avoidance 1M

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(ii)Solve the following and identify if the System is in SAFE or UNSAFE STATE

Total Resources			
A	B	C	D
6	5	7	6

Available			
A	B	C	D
3	1	1	2

	Allocated				Maximum				Need			
	A	B	C	D	A	B	C	D	A	B	C	D
P1	1	2	2	1	3	3	2	2	2	1	0	1
P2	1	0	3	3	1	2	3	4	0	2	0	1
P3	1	2	1	0	1	3	5	0	0	1	4	0

3M

5A. Memory partitions of 100kb, 500kb, 200 kb, 300kb, 600kb are available how would BEST WORST, FIRST FIT algorithm to place processes 212,417,112,426 in order. 3M

5B. Explain ACYCLIC GRAPH DIRECTORY Structure and also explain the related issues and ways of handling them. 3M

5C. With the help of the DISK QUEUE with request for i/o to blocks on cylinders-98,183, 37, 122, 14, 124, 65,67 explain FCFS, SCAN, C-SCAN and LOOKUP 4M

6A. Explain the concept of BUSY WAITING and SPIN LOCKS in Semaphores. What are its Advantages and Disadvantages 2M

6B. (i) Explain the SWAP SPACE Management and BUDDY SYSTEM of memory Management of Linux Operating system? 2M

(ii) Explain the concept of HARD LINK and SOFT LINK in LINUX 2M

6C. Describe various file access methods? 4M