M.TECH. DEGREE EXAMINATION

Branch: Computer Science & Engineering

Specialization: Computer Science & Systems Engineering

Model Question Paper - I

First Semester

MCSSE 103 OPERATING SYSTEM DESIGN

(Regular – 2013 Admissions)

Time: 3 hours **Maximum Marks: 100**

1(a)	List the advantages and disadvantages of buffer cache.	**(5)**
(b)	List the reasons behind the popularity of UNIX.	**(5)**
(c)	With a neat block diagram, explain the components of the UNIX System Kernel.	**(15)**
	OR	
2 (a)	With neat diagrams, explain the five scenarios for retrieval of a buffer.	**(15)**
(b)	Explain the Block Read Ahead Algorithm and mention how it improves the performance.	**(10)**
3 (a)	List the contents of disk inodes and in-core inodes.	**(10)**
(b)	Compare the fields of in-core inode and buffer header.	**(5)**
(c)	Explain the structure of a regular file.	**(10)**
	OR	
4 (a)	Explain the layout of a directory in UNIX.	**(10)**
(b)	Explain how a given path name can be converted into an inode.	**(15)**
5 (a)	With neat diagrams, explain the process state model for the UNIX system and set of state transitions.	**(15)**
(b)	Explain the context switch.	**(10)**
	OR	
6 (a)	Explain the process creation using the fork system call.	**(15)**

(b)	Explain the algorithm for booting the system.	**(10)**
7 (a)	Describe how the swap space is managed on the swap device and processes are swapped out of main memory.	**(15)**
(b)	Explain the algorithm for opening a device.	**(10)**

OR

8 (a)	Explain the algorithm for opening a device.	**(10)**
(b)	Explain how one process traces and controls the execution of another process.	**(15)**