Chapter wise assignment questions

Course: Operating System II

Topic No.	Topic Name	Que No	Assignment Question
1	Introduction and buffer cache	1	Explain the architecture of the UNIX System.
		2	Draw and explain block dig of kernel
		3	Explain with example: Building block primitives.
		4	What is a buffer? Explain the structure of the buffer header.
		5	Draw and explain data structure of file subsystem.
		6	Explain different scenarios for retrieval of buffer.
		7	Write and explain algorithms: 1. Buffer allocation (getblk), 2. Releasing a buffer (brelse), 3. Reading disk block (bread), 4. Block read ahead (breada)
		8	Explain advantages and disadvantages of buffer cache.
2	Internal Representation of Files	1	What is inode? Types of inode? Summarise the fields from disk inode.
		2	Explain the following algorithms- 1. namei (convert pathname to inode), 2. iget, 3. iput, 4. bmap
		3	Explain fields of In core inode.
		4	Explain the structure of the Regular file. (Draw dig and explain)
		5	Explain Directories with layout example.
		6	What is a Super block? List and explain fields of super block.
		7	Explain following algorithms- 1. ialloc, 2. alloc, 3. ifree
3	System Calls for File System	1	Explain dup() system call with example
		2	Explain difference between Named pipe and Unnamed pipe
		3	Explain read() system call with example
		4	Write short note change directory and change root.
		5	Explain algorithm creat for creating file.
		6	Draw the file system before and after executing following mount system call- Mount("/dev/dsk1/","/user",0)
		7	Explain algorithm for mounting the file.
		8	Explain Read and Write operation in the file.

4	The Structure of Processes	1	Draw and explain complete Process state transition diagram.
		2	Write and explain algorithm for allocating a Region
		3	Explain with diagram concept of Process in detail.
		4	Explain with example mapping of process virtual address to physical memory address.
		5	List and explain fields of process table.
		6	What is U area? List and explain fields from U area.
		7	Discuss mapping between per process region table and page table.
		8	What is context switch ?
5	Process Control and Scheduling	1	Explain the algorithm for exit() system call.
		2	Explain different functions of clock interrupt handler.
		3	Explain system calls for time.
		4	What is the use of fork() system call? Explain the sequence of operations kernel executes for fork.
		5	What is the use of signal? Explain types of signals.
		6	System system bbot and init process.
		7	Draw and explain user level and kernel level priority.
		8	Explain simple process scheduling algorithm with example.
		9	Explain how kernel prevents a process from monopolizing the use of CPU in Unix System V
		10	Explain profiling in detail.
6	Memory management and I/O Subsystem	1	What is demand paging? Explain data structures used for it.
		2	Explain working of page stealer process.
		3	Explain page fault. Explain handling of validity page fault.
		4	Explain in detail allocation of space on swap device.
		5	Explain the swapping of processes between swap space and main memory.
		6	Write a short note on: Streams.