Exam No._____

GANPAT UNIVERSITY

B. Tech Semester – VII Information Technology
Regular Examination November/ December - 2011
IT- 705: ADVANCE OPERATING SYSTEM

Time: 3 Hours] **[Total Marks: 70**

Instructions:

1. Attempt all questions.
2. Figures to the right indicate full marks
3. Each section should be written in a separate answer book

SECTION-I

1.	(A)	Draw and Explain different scenarios For buffer retrieval.	[6]
	(B)	Write the algorithm for writing a Disk Block In UNIX	[3]
	(C)	Draw the Unix Process sub system Data Structure	[3]
		OR	
1.	(A)	Draw and Explain Free list of Buffer.	[3]
	(B)	Write the algorithm for Reading a Disk Block	[3]
	(C)	Write the algorithm for Block Read Ahead	[3]
	(D)	Draw the 4-state process transition diagram	[3]
2.	(A)	Write the Algorithm for Conversion of byte offset to Block number in File System (bmap).	[6]
	(B)	Write the algorithm for Allocation of in-core inode.	[5]
		OR	
2.	(A)	Write the algorithm used by UNIX kernel for Assigning new Inodes (ialloc).	[3]
	(B)	Write the algorithm for Freeing Inode	[3]
	(C)	Draw and Explain the structure of Inode	[3]
	(D)	Explain Super Block in File System .	[2]
3.	(A)	Define the following term (1) System call (2) Inode (3) Reference Count	[3]
	(B)	How the kernel protect its consistency? Explain it with example.	[3]
	(C)	Explain Building Block Primitives In UNIX	[3]
	(D)	Draw and Explain the File System Layout in UNIX	[3]

SECTION-II

4. (A) What is the relation between i-node table and region table for shared Text? Discuss Xalloc algorithm for allocation of text region. [6]

(B) Trace the Exit System call for following program [6]

```
main()
{
    int child;
    if((child==fork())==0)
    {
      printf ("child PID %d\n",getpid());
      pause();
    }
   Printf("child PID %d\n",child);
   Exit(child);
}
```

OR

4. (A) Draw the 8 state UNIX process state transition diagram with clearly Marking the transition/state . [6]

(B) Write the algorithm for opening a file (open). Trace the algorithm with Suitable example [6]

5. (A) Write the program for illustrating Lseek System call. [3]

(B) Write the algorithm for changing a current directory. [3]

(C) Write the algorithm for Creating a File (creat)in UNIX [5]

OR

5. (A) Which algorithm is used to change the size of process. Show the Steps of the algorithm [6]

(B) Write the Algorithm for Attach a region to a process [5]

6. (A) Suppose the kernel wants to load text of size 9K into region that is Attached at virtual address 0 of a process but wants to leave a gap Of 1K bytes at the beginning of the region. Name the algorithms that Are invoked in sequence.Show graphically how to load text region. How to detach a region from a process. [6]

(B) What are the anomalies for processes sleeping on event ? Trace Sleep Algorithm. [6]