SL - 1018

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Seat No.	

T.E. (CSE) (Semester - VI) (Part -III) (Revised) (New) Examination, April - 2017
OPERATING SYSTEM -II
Sub. Code : 66859

Day and Date :Friday, 28 - 04 - 2017 **Total Marks : 100**

Time : 02.00 p.m. to 05.00 p.m.

Instructions :
1) **Question No. 1 and Question No. 8 are compulsory. Solve any four questions from remaining questions.**
2) **Figures to the right indicte full marks.**
3) **Clearly mention your assumed data wherever necessary.**

Q1) a) With a neat block diagram of the system kernel, explain architecture of the Unix system **[9]**

b) With a neat schematic of hash queue headers and free list updates, explain the following scenario for the buffer retrieval: The kernel cannot find the block on the hash queue, so it allocates a buffer from the free list. **[9]**

Q2) a) Explain the process of conversion of pathname to i-node with algorithm "namei". **[8]**

b) What is super block? List and explain various fields of super block. **[8]**

Q3) a) Consider the following program. **[8]**

```
#include<fcntl.h>
Main ()
{
    int fd1, fd2;
    char buf 1[512],buf2[512];
    fd1=open("/etc/ passwd", O_RDONLY);
    fd2=open("/etc/ passwd", O_RDONLY);
    read(fd1, buf1, sizeof(buf1));
    read(fd2, buf2, sizeof(buf2));
}
```

P.T.O.

with the help of above program explain how a process can open a file more thatn once and read it via different file descriptors.

b) What are pipes? Explain the algorithm "pipe" for creation of unnamed pipes. [8]

Q4) a) State and explain the algorithm "alloc" for allocating disk blocks. [8]

b) Explain the mount sytem call. Draw the file system tree before and after Mount. List various entries of the mount table [8]

Q5) a) Explain in detail process state transitions with a neat diagram. [8]

b) What is the significance of signals in Unix? Enlist the categories of signals those are defined in system V Unix. [8]

Q6) a) Explain with a diagram, the mapping of process space onto the swap device. [8]

b) Briefly explain the functions of line disciplines. Explain call sequence and data flow through line discipline. [8]

Q7) a) What is context of a process? Explain with diagram components of the context of the process. [8]

b) State and explain the algorithm "start" for booting the system. [8]

Q8) Write short note (any three) [3 × 6 = 18]

a) Process table entries

b) The shell

c) ioctl system call

d) System boot and the init process

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