SE-205

Seat No.	

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T.Y. B.Tech. (Computer Science and Engineering) (Part - III) (CBCS) (Semester - VI) Examination, March - 2023

OPERATING SYSTEM - II

Sub. Code : 81547

Day and Date : Tuesday, 27 - 06 - 2023 **Total Marks : 70**

Time : 10.30 a.m. to 01.00 p.m.

Instructions : **1)** **All questions are compulsory.**
2) **Figure to the right indicate full marks.**
3) **Assume suitable data wherever necessary.**

Q1) Solve MCQs. **[7×2=14]**

i) Pool of internal data buffers are called as _____.
   a) Memory b) Free list
   c) Buffer Cache d) Pool

ii) The kernel must write buffer contents to disk before reassigning the buffer this condition is called as _____.
   a) write b) delayed write
   c) read d) append

iii) 'ialloc' assigns _____ to a newly created file.
   a) disk inode b) disk block
   c) byte offset d) none of the above

iv) Processes can use _____ system call to position the I/O and allow random access to the file.
   a) read b) creat
   c) mknod d) lseek

v) Every memory location of a page is addressed by :
   a) (Virtual page number, logical page number) pair
   b) Virtual page number
   c) (Virtual page number, byte offset in page) pair
   d) (Page number, byte offset in page) pair

P.T.O.

vi) The scheduler of UNIX belongs to general class of operating system schedulers known as _____.

a) Round robin

b) Multilevel round robin

c) Round robin with multilevel feedback

d) Round robin feedback

vii) _____ have the same function as other drivers to control the transmission of data to and from terminals.

a) terminal driver b) disk driver

c) device driver d) stream

Q2) Solve any two of the following. **[2×7=14]**

a) Draw and explain block diagram of UNIX kernel.

b) Explain the algorithm for conversion of pathname to Inode.

c) Draw and explain the file system data structures for each statement when processes (A/B) executes following system calls:

Process A:

fd1=open("/etc/passwd",O_RDONLY);

fd2=open("local",O_RDWR);

fd3=open("/etc/passwd",O_WRONLY);

Process B:

fd1=open("/etc/passwd",O_RDONLY);

fd2=open("private",O_RDONLY);

Q3) Solve any two of the following. **[2×7=14]**

a) Explain the advantages and disadvantages of buffer cache.

b) What is Inode? Summarize the fields from disk inode?

c) Let us assume disk block contains 1024 bytes and there are 10 direct blocks, 1 single indirect block, 1, double indirect block, 1 triple indirect block. Find the maximum size of the file of a file's table of content. Write your own assumptions if any.

Q4) Solve any two of the following. **[2×7=14]**

a) With the help of state transition diagram, explain the life cycle of process?

b) What is the use of fork system call? Explain the sequence of operations kernel executes for fork.

c) What is demand paging? Explain data structure used for demand paging?

Q5) Solve any two of the following. **[2×7=14]**

a) What is region? Describe algorithm for allocate region?

b) Explain system calls for time?

c) Explain different functions of clock interrupt handler.