JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- 2026

B.Tech-V Semester (CSE/IT)

COURSE CODE (CREDITS): 25B11CI514 (3) MAX. MARKS: 15

COURSE NAME: Operating Systems

COURSE INSTRUCTOR:**ATA**, SMA, PTK, SDH,SRJ MAX. TIME: 1 Hour

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Note: *(a) All questions are compulsory.*

(b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

(c) Use of calculator is not allowed

JUIT TEST-1 EXAMINATION- AUG-2026

Q.No	Question	CO	Marks
Q1	a) Discuss any two important services provided by an operating system for each of the mentioned categories: i. Helpful to the user ii For efficient operation of the system itself b) Differentiate between multiprogramming and multitasking operating systems with suitable examples. c) Define a thread. How is a thread different from a process? List any four differences.	1	(2+1+2)
Q2	(I) A process P is executing on a CPU. During its execution, it requests a disk I/O operation. The operating system assigns the CPU to another process Q. After the disk operation completes, an interrupt is generated. Analyze the above sequence and answer the following with justification. a) Which process-state transitions does P undergo from the time it requests the I/O until it is scheduled for execution again? b) When P is removed from the CPU, what information must be preserved by the operating system to allow P to resume correctly? c) Consider the following two events: (i) P is replaced by Q on the CPU. (ii) P moves from the Waiting state to the Ready state after I/O completion. Are both events context switches? Justify your answer. (II) Consider the following program snippet. Assume that the program compiles and runs successfully. Further, assume that the fork() system call is always successful in creating a process. int main () { int i;	2	(3+2)

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```
for (i = 0; i < 3; i++) {
        if (fork() == 0) {
                continue;
        }
        break;
}
printf("Hello");
return 0;
}
```

Find out number of times the printf() statement is executed by all processes. Draw the complete process tree showing the parent-child relationship among all the processes.

Q3

Process Id	Arrival time	Burst time	Priority
P1	0	4	2
P2	1	3	3
P3	2	1	4
P4	3	5	5
P5	4	2	5

Solve Below Questions using Pre-emptive Priority scheduling (Higher number represents higher priority)

a) Draw Gantt Chart?
b) Calculate Average Waiting Time?
c) Calculate Average Turn Around time.

3 (2+1.5+1.5)

ALL THE BEST

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