JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- 2026

B.Tech-I Semester (CSE/IT/BT/ECE/CE)

COURSE CODE (CREDITS): 18B11CI411 MAX.MARKS: 15

COURSE NAME: Operating Systems

COURSE INSTRUCTOR: Saddam Hussain MAX.TIME: 1 Hour

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

Q.No	Question	CO	Marks
Q1	(i) a) Briefly describe the evolution of operating systems from batch processing systems to modern systems. b) Differentiate between multiprogramming and multitasking operating systems with suitable examples. (ii) Define a thread. How is a thread different from a process? List any four differences.	CO-1	1+1+2
Q2	a) What is context switching? b) Explain why context switching is considered pure overhead and list the information saved during a context switch.	CO-2	1+2
Q3	a)What is a Process Control Block (PCB)? b) List at least six important fields typically stored in a PCB.	CO-2	1+1
Q4	Define the following CPU scheduling criteria: CPU utilization, Throughput, Turnaround Time, Waiting Time, and Response Time.	CO-3	2

Q5	Consider the following processes with their arrival time and burst time: **Process** / **Arrival Time** / **Burst Time** **P1** / **0** / **5** **P2** / **1** / **3** **P3** / **2** / **8** **P4** / **3** / **6** Calculate the average waiting time and average turnaround time using: (a) **SJF (Non-preemptive)** (b) **Round Robin** with time quantum = 4 ms	CO-3	2+2