

JK Lakshmipat University Jaipur

INSTITUTE OF ENGINEERING AND TECHNOLOGY

End Term Examination, December 2023

B. Tech, Semester-III

Roll No.....

Course Code: CS1134

Time: 2 Hours

Max. Marks: 30

Course Name: Computer Organization and Architecture

Instructions to students:

1. Do not write anything other than your roll number on question paper.
2. Assume suitable data wherever required and mention it clearly.

Q 1	Explain the difference between (attempt any 6). All 6 answers should be together at one place in answer sheet (not scattered within the answer book). (1 Mark each) i. I/O mapped I/O and Memory mapped I/O ii. Software Polled I/O and Interrupt driven I/O iii. Static memory and Dynamic memory iv. Structural Hazard and Control Hazard v. RAW hazard and WAR hazard vi. Seek time and Latency. vii. Synchronous bus and Asynchronous bus viii. Write-allocate and Write-no-allocate policy.	06 CO4 CO5 CO6
Q2	A. A pipeline has 6 stages: S1, S2, S3, S4, S5 & S6 with execution times of 3, 2, 2, 3, 1, 2 cycles. Draw space-time diagram for a sequence of 8 instructions and calculate the speedup achieved by pipelining as compared to non-pipelined (sequential) execution. B. Explain the concept of data forwarding. Give one example when data forwarding is useful and another example where it doesn't help. OR	03 03 CO5 CO6
Q2	Consider a moving head disk system with 300 tracks. Currently the head is at track 130 and the request queue is for tracks 30, 140, 250, 135, 55, 145, 265. Assuming that it takes 1 ms to move head from one track to the adjoining track, calculate the total time taken to service all requests using (a) FCFS (b) SSTF (c) SCAN algorithms.	06 CO5
Q3	A. Divide 573 by 21 (in binary representation) using (i) Non-Restoring Division (ii) Restoring division algorithms. Show all steps and contents of each registers used in each step. B. State the causes of cache incoherency with examples.	04 02 CO2 CO6

