Assignment No.4

Code/Sub: 2113114/Computer Organization & Architecture **Year/Sem: SE-III**
Date of Announcement: **Date of Submission:**

Course Outcome 2113114.4: Analyze various memory types and discriminate between interleaved, associative, and cache memory.

Q. No	Question	Bloom Level
1	A game developer reports that even though their CPU is powerful, performance drops drastically during large map loading and transitions. A system analysis reveals frequent accesses to main memory and even virtual memory (disk). Analyze how the memory hierarchy is causing the performance issue in this case. Break down the different levels of the memory hierarchy and appraise their role in managing performance. Appraise about optimization of it.	Analyze
2	During a system upgrade discussion, a junior engineer suggests removing the L2 cache to save cost and depend solely on main memory for speed. As a senior system architect, you are asked to evaluate this proposal. Analyze the differences between cache and main memory in terms of access speed, role, and cost-effectiveness. Appraise about whether removing the L2 cache would be a viable solution or not.	Analyze

3	A developer is analyzing the performance of a matrix multiplication program and finds that despite a high-speed processor, execution is slow. Profiling shows frequent cache misses and high memory access latency. Analyze why cache misses occur in this matrix multiplication program. Appraise factors in memory hierarchy and data access patterns contribute to these misses? Suggest ways to restructure the program to reduce cache misses.	Analyze