**Case Study**

1. Prepare a case-study of any topic relevant to the Computer Organization and Architecture subject.
2. The minimum content for the case-study will be 1.5-2 pages with the current font (Times New Roman: 12) and line spacing (line-spacing:1.5) utilizing the word format.
3. The content for the same should be entirely written by the student without any AI generated tools, Internet, or Books.
4. However, as a reference the students can use any materials however the content should not be copied. Please note that each case-study should be unique, and all the case-studies should undergo a plagiarism check which will list out all the copied or AI generated content.
5. The case-study should contain enough information about the topic, mention about the current trends/challenges and the end of the case-study should provide information about what further research works can be attempted/targeted.
6. Please make sure the case-studies are within the scope of the subject.
7. Each case-study carries 10 marks.

Suggested topics but not limited to:

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| 1. | Case Study on Advanced RISC Machines (ARM) Processor |
| 2. | Case study on Intel-(32/64) Architecture |
| 3. | Memory hierarchy design in large-scale data centres. |
| 4. | Practical use of Direct Memory Access (DMA) in real-time applications. |
| 5. | Real-world implementation of parallel processing in GPUs (e.g., NVIDIA). |
| 6. | Advanced cache optimization techniques and memory management algorithms. |
| 7. | RISC and CISC pipeline performance. |
| 8. | Floating-Point Arithmetic and Precision Errors |
| 9. | Design and Implementation of a Carry-Lookahead Adder |
| 10. | Handling pipeline delays in MIPS Architecture |

**Deadline for submission: 21-04-2025 (Monday)**