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Total No. of Pages : 01

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M.Tech.(IT) (2015 & Onwards) (CSE Engg.) (2015 to 2017) (Sem.-1)

ADVANCED COMPUTER ARCHITECTURE

Subject Code : MTCS-102

Paper ID : [72630]

Time : 3 Hrs.

Max. Marks : 100

INSTRUCTION TO CANDIDATES :

1. Attempt any FIVE questions out of EIGHT questions.
2. Each question carries TWENTY marks.

- Q1) Define computer architecture. Illustrate the seven dimensions of an ISA.
- Q2) a) Explain different benchmarks to measure the computer performance.
b) Give the equation for pipeline CPI. How is it related to ideal pipeline CPI? Explain the terms involved in it.
- Q3) a) Differentiate between SIMD and MIMD architecture.
b) Explain in detail the concept of code scheduling for ILP-processors.
- Q4) Briefly explain four basic cache optimization methods.
- Q5) Explain different classes of pipeline hazards with examples.
- Q6) a) What is degree of parallelism? What impact it has on the overall system architecture and its performance?
b) Describe how can the performance of a memory system be analyzed.
- Q7) a) Explain mutual exclusion and its relation to the cache coherence problem.
b) Consider the two tasks T_0 and T_1 that are executed in parallel on Processors P1 and P2, respectively, in the shared memory system. Assume that the print statement is uninterruptible, and A, B, C, D are initialized to 0.

T_0	T_1
A = 1;	C = 3;
B = 2;	D = 4;
Print A,D;	Print B,C;

Show the different possible outputs of the parallel execution of these two tasks.

- Q8. Write note on the following :
- a) Memory Protection.
 - b) Multi-core processors.