

Sample Paper-I
High performance Computer Architecture

Attempt all questions

Max Marks-50

1. a) Explain Flynn's four classification architectures with suitable diagrams.
b) What is parallelism? Explain three conditions of parallelism.
2. a) Explain features of **Motorola MC68040 microprocessor** architecture in detail with suitable diagram.
b) Explain Write once Protocol with suitable diagrams.

3. a) A 40-MHz processor was used to execute a benchmark program with the following instructions mix and clock cycle counts:

Instruction Type	Instruction count	Clock cycle count
Integer arithmetic	45000	1
Data Transfer	32000	2
Floating point	15000	2
Control Transfer	8000	2

- b) What is pipelining?
4. a) Explain Sequential Consistency Model with suitable diagram with reference to all three scientists i.e. Lamport's Definitions, Briggs and Sindhur specifications.
b) What are Directory-Based Protocols? Explain Full Map Directories & Limited Directories with suitable diagrams.
5. a) Explain three Message-Routing Schemes with suitable diagrams.
b) What are Grid Computing & its goals? Explain with examples using diagrams.