Exam. Code : 208601

Subject Code : 4706

M.Sc. Information Technology 1st Semester

ADVANCED COMPUTER ORGANIZATION & ARCHITECTURE

Paper—MIT-103

Time Allowed—3 Hours] [Maximum Marks—100

Note :— Attempt **five** questions in all, taking at least **one** question from each Section. All questions carry equal marks.

SECTION-A

1. What are various levels of parallelism in program execution ? Explain Flynn's classification of Computer Architecture.

2. Write short notes on :

   (a) PRAM models.

   (b) Characteristics of MIMD multiprocessors.

SECTION-B

3. What are multiprocessor, multi-computer and multi-core systems ? Explain with an example the parallel processing mechanisms in uni-processor systems.

4. Write short notes on :

   (a) Serial versus parallel processing.

   (b) Parallelism versus Pipelining.

SECTION-C

5. How does a linear pipeline processor work ? Define and derive the formula for speedup, efficiency and throughput.

6. What are the different approaches taken by pipeline processor to handle branch instructions ? Briefly illustrate any two approaches.

SECTION-D

7. What are the significant characteristics of superscalar and super-pipeline processors ? Discuss the design of superscalar processor.

8. Elaborate the following :

   (a) SIMD Array Processors.

   (b) Inter-PE communications.