

4. Write short notes on the following :

- (a) Amdahl's law for measuring speed up performance of parallel systems.
- (b) Multiplicity of instruction-Data Streams.

#### SECTION-C

- 5. What is meant by 'hazard' in a pipeline processor ? What are the different types of hazards ? How can these different types of hazards be overcome ?
- 6. What are the different approaches taken by pipeline processors to handle branch instructions ? Briefly illustrate any two approaches.

#### SECTION-D

- 7. Define and differentiate the Superscalar and Super-Pipeline Processors. Discuss the design of superscalar processor.
- 8. Define the following :
  - (a) SIMD machines and effect of inter-processor element communication network on the performance of SIMD machines
  - (b) Masking and Data Routing mechanisms

Exam. Code : 208601

Subject Code : 4812

M.Sc. Information Technology 1<sup>st</sup> Semester  
(Batch 2021-23)

**ADVANCED COMPUTER ORGANIZATION &  
ARCHITECTURE**

**Paper : MIT-103**

Time Allowed—3 Hours]

[Maximum Marks—100

**Note :—**Attempt **FIVE** questions in all, selecting at least **ONE** question from each section. The **fifth** question may be attempted from any section. All questions carry equal marks.

#### SECTION-A

- 1. What are the different kinds of computing paradigms ? Discuss Flynn's taxonomy of architectural classification of computer systems with suitable diagrams.
- 2. Explain the following :
  - (a) Sorting networks and its efficiency measurement
  - (b) PRAM Models

#### SECTION-B

- 3. What is parallel processing ? Discuss the sources of parallelism in uni-processor systems.