

Roll No.

Total Pages : 02

BT-6/M-22

46167

ADVANCED COMPUTER ARCHITECTURE
PE-CS-S302A

Time : Three Hours]

[Maximum Marks : 75

Note : Attempt *Five* questions in all, selecting at least *one* question each from Unit I to Unit IV. All questions carry equal marks.

Unit I

1. Discuss the relationship between programming languages and parallel architecture. Explore the computer architecture as a multilevel hierarchical framework. 15
2. (a) What do you mean by instruction level parallel processors ? Discuss about code scheduling for ILP processors. 8
(b) Outline the general structure of Pipelines. List the principles and performance measures of pipeline. 7

Unit II

3. What are superscalar processors ? How these processors are different from VLIW ? Describe the tasks of superscalar processing.

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4. (a) What is branch problem in computer architecture ?
Discuss branch detection and prediction scheme. 8
(b) Write a note on guarded execution. 7

Unit III

5. Differentiate between the following :
(a) Shared memory and Distributed memory MIMD architecture 8
(b) UMA, NUMA and CCNUMA. 7
6. (a) Discuss in detail the design space of static interconnection topology. 8
(b) Write notes on the following : 7
(i) Single shared bus
(ii) Omega network.

Unit IV

7. Briefly explain the following :
(a) Memory hierarchy technology 8
(b) Cache coherence problem. 7
8. Discuss the design space of software based protocols and hardware based cache protocol and cache coherence protocol. 15