BT- -22

ADVANCED OMPUTER ARCHITECTURE
PE-CS- 302A

Time : Three Hours]   [Maximum Marks : 75

ote : 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.

Unit II

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

4. (a) What is branch problem in computer architecture ? Discus 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

(b) Cache coherence problem.

8 Discuss the design space of software based protocol and hardware based cache protocol and cache oh n protocol