ACHARYA INSTITUTE OF TECHNOLOGY
Bangalore - 560090

USN | | | | | | | | | | |

06CS81

Eighth Semester B.E. Degree Examination, Dec.2016/Jan.2017
Advanced Computer Architecture

Time: 3 hrs. Max. Marks:100

Note: ***Answer FIVE full questions, selecting at least TWO questions from each part.***

PART – A

1 a. Define computers architecture. Illustrate seven dimensions of an ISA? **(10 Marks)**
b. Explain in brief, measuring, reporting and summarizing performance of computer. **(10 Marks)**

2 a. What are the major hurdles of pipeling? Illustrate the branch hazard in detail. **(10 Marks)**
b. Explain five ways of classifying exception in a computer system. **(10 Marks)**

3 a. What are the techniques used to reduce branch costs? Explain both static and dynamic branch. **(10 Marks)**
b. What is the drawback of 1-bit dynamic branch prediction method? Clearly state how it is overcome in 2-bit prediction. Give the state transition diagram of 2-bit predictor. **(10 Marks)**

4 a. Explain the basic VLIW approach for exploiting ILP using multiple issues. **(10 Marks)**
b. What are the key issues in implementing advanced speculation techniques? Explain then in detail. **(10 Marks)**

PART – B

5 a. Explain the basic schemes for informing coherence in a shared memory multiprocessor system. **(10 Marks)**
b. Explain the directory based coherence for a distributed memory multiprocessor system. **(10 Marks)**

6 a. Explain in brief the types of basic cache optimization. **(10 Marks)**
b. With a neat diagram, explain organization of data cache in the opteron microprocessor. **(10 Marks)**

7 a. Which are the major categories of the advanced optimization of cache performance? Explain any one in detail. **(10 Marks)**
b. Explain in detail the architecture support for protective processes from each other via virtual memory. **(10 Marks)**

8 a. Explain in detail the H/w support for preserving exception behaviour during speculation. **(10 Marks)**
b. Explain the prediction and speculation support provided in IA-64. **(10 Marks)**

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