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Seventh Semester B.E. Degree Examination, July/August 2021
Advanced Computer Architecture

Time: 3 hrs.

Max. Marks:100

Note: Answer any FIVE full questions.

- 1
 - a. Define Computer Architecture. Explain seven ISA's of computer. (08 Marks)
 - b. Give a brief explanation about trends in power in integrated circuits and cost. (08 Marks)
 - c. Define the following terms: MTTR, MTTF, availability and FIT. (04 Marks)
- 2
 - a. Discuss five basic stages of RISC instruction execution with neat block diagram. (08 Marks)
 - b. Define and list major hurdles of pipeline and illustrate data hazard with stall and without stall with example. (12 Marks)
- 3
 - a. Explain in detail 3 different types of dependency. (10 Marks)
 - b. Discuss the methods used to reduce branch costs with prediction. (10 Marks)
- 4
 - a. Explain the basic VLIW approach for exploiting instruction level parallelism using multiple issues. (08 Marks)
 - b. What are the key issues in implementing advanced speculation techniques? Explain in detail. (08 Marks)
 - c. Write a note on value predictors. (04 Marks)
- 5
 - a. Explain the taxonomy of parallel architectures. (04 Marks)
 - b. Explain the basic structure of centralized shared memory architecture and distributed memory multiprocessor system. (10 Marks)
 - c. Define cache coherence and explain different possibilities when the memory system is coherent. (06 Marks)
- 6
 - a. Explain the four memory hierarchy questions in detail. (08 Marks)
 - b. Discuss 3C's of cache miss. (04 Marks)
 - c. Discuss about the methods used to reduce miss penalty. (08 Marks)
- 7
 - a. Explain the different methods used to increase the cache bandwidth. (10 Marks)
 - b. Discuss in detail compiler optimization to reduce miss rate. (10 Marks)
- 8
 - a. Explain detecting and enhancing loop level parallelism for VLIW. (06 Marks)
 - b. Explain Intel-IA 64 architecture with neat diagram. (06 Marks)
 - c. Explain hardware support for exposing parallelism for VLIW and EPIC. (08 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
 2. Any revealing of identification, appeal to evaluator and /or equations written eg. 42+8 = 50, will be treated as malpractice.