Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 77095

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2015.

Third Semester

Computer Science and Engineering

CS 6303 — COMPUTER ARCHITECTURE

(Common to Information Technology)

(Regulation 2013)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. List the eight great ideas invented by computer architects.
2. Distinguish Pipelining from Parallelism.
3. How overflow occur in subtraction?
4. What do you mean by sub word parallelism?
5. What are R-Type instructions?
6. What is a branch prediction buffer?
7. Differentiate between Strong scaling and Weak scaling.
8. Compare UMA and NUMA multiprocessors.
9. What is the need to implement memory as a hierarchy?
10. Point out how DMA can improve I/O speed.

PART B — (5 × 16 = 80 marks)

11. (a) Discuss about the various techniques to represent instructions in a computer system. (16)

Or

(b) What is the need for addressing in a computer system? Explain the different addressing modes with suitable examples. (16)

12. (a) Explain the sequential version of multiplication algorithm and its hardware. (16)

Or

(b) Explain how floating point addition is carried out in a computer system. Give an example for a binary floating point addition.

13. (a) Explain the different types of pipeline hazards with suitable examples. (16)

Or

(b) Explain in detail how exceptions are handled in MIPS architecture? (16)

14. (a) Discuss about SISD, MIMD, SIMD, SPMD and VECTOR systems. (16)

Or

(b) What is hardware multithreading? Compare and contrast Fine grained Multi-Threading and Coarse grained Multi-Threading. (16)

15. (a) Elaborate on the various memory technologies and its relevance. (16)

Or

(b) What is virtual memory? Explain the steps involved in virtual memory address translation. (16)
