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Question Paper Code : 80289

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2016.

Sixth Semester

Electronics and Communication Engineering

CS 6303 — COMPUTER ARCHITECTURE

(Common to Third Semester Information Technology and Computer Science and Engineering)

(Regulations 2013)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is an instruction register?

2. Give the formula for CPU execution time for a program.

3. What is a guard bit and what are the ways to truncate the guard bits?

4. What is arithmetic overflow?

5. What is meant by pipeline bubble?

6. What is a data path?

7. What is instruction level parallelism?

8. What is multithreading?

9. What is meant by address mapping?

10. What is cache memory?

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PART B — (5 × 13 = 65 marks)

11. (a) Explain in detail the various components of computer system with neat diagram.

Or

(b) Explain the different types of Addressing modes with suitable examples.

12. (a) Explain Booth's Algorithm for the multiplication of signed two's complement numbers.

Or

(b) Discuss in detail about division algorithm in detail with diagram and examples.

13. (a) Why is branch prediction algorithm needed? Differentiate between the static and dynamic techniques.

Or

(b) Explain how the instruction pipeline works. What are the various situations where an instruction pipeline can stall?

14. (a) Explain in detail about Flynn's classification of parallel hardware.

Or

(b) Discuss Shared memory multiprocessor with a neat diagram.

15. (a) Discuss DMA controller with block diagram.

Or

(b) Discuss the steps involved in the address translation of virtual memory with necessary block diagram.

PART C — (1 × 15 = 15 marks)

16. (a) What is the disadvantage of Ripple carry addition and how it is overcome in carry look ahead adder and draw the logic circuit CLA.

Or

(b) Design and explain a parallel priority interrupt hardware for a system with eight interrupt sources.

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