# **Question Paper Code : 27162**

Reg. No. :

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2015.

# Third Semester

Computer Science and Engineering

## CS 6303 — COMPUTER ARCHITECTURE

(Common to Information Technology)

(And also common to Fifth Semester Elective – Electronics and Instrumentation Engineering, Instrumentation and Control Engineering and Fifth Semester – Robotics and Automation Engineering )

(Regulations 2013)

Time : Three hours

Maximum: 100 marks

Answer ALL questions.

PART A — 
$$(10 \times 2 = 20 \text{ marks})$$

- 1. What is Instruction set architecture?
- 2. How CPU execution time for a program is calculated?
- 3. What are the overflow/underflow conditions for addition and subtraction?
- 4. State the representation of double precision floating point number.
- 5. What is a hazard? What are its types?
- 6. What is meant by branch prediction?

7. What is ILP?

- 8. Define a super scalar processor.
- 9. What are the various memory technologies?
- 10. Define Hit ratio.

## PART B — $(5 \times 16 = 80 \text{ marks})$

11. (a) Explain in detail the various components of computer system with neat diagram. (16)

Or

- (b) What is an addressing mode? Explain the various addressing modes with suitable examples. (16)
- 12. (a) Explain in detail about the multiplication algorithm with suitable example and diagram. (16)

Or

- (b) Discuss in detail about division algorithm in detail with diagram and examples. (16)
- 13. (a) Explain the basic MIPS implementation with necessary multiplexers and control lines. (16)

#### Or

- (b) Explain how the instruction pipeline works? What are the various situations where an instruction pipeline can stall? Illustrate with an example. (16)
- 14. (a) Explain in detail Flynn's classification of parallel hardware. (16)

#### Or

- (b) Explain in detail about hardware Multithreading. (16)
- 15. (a) What is virtual memory? Explain in detail about how virtual memory is implemented with neat diagram? (16)

Or

(b) Draw the typical block diagram of a DMA controller and explain how it is used for direct data transfer between memory and peripherals? (16)