

Reg. No. :

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D 4115

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2008.

Fourth Semester

(Regulation 2004)

Computer Science and Engineering

CS 1251 — COMPUTER ARCHITECTURE

(Common to Information Technology)

(Common to B.E. (Part-Time) – Third Semester – Regulation 2005)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Draw block diagram of a basic processor.
2. Differentiate direct and indirect addressing mode.
3. Using 2's complement method perform $(1010_2 - 1111_2)$.
4. Write rule for addition in floating point operation.
5. Explain structural hazard.
6. List the conditions to overcome data hazard.
7. Differentiate DRAM and SDRAM.
8. Design a 1 MB × 32 bit memory using 256 kB × 8 bit static cell.
9. Differentiate serial and parallel ports.
10. Explain handshaking with respect to data transfer.

PART B — ($5 \times 16 = 80$ marks)

11. (a) Write the basic performance equation and using this equation explain how the performance of a system can be improved. (16)

Or

- (b) (i) Explain how the instruction $A = B - C$ gets executed in a system in detail. (8)
- (ii) Explain briefly stacks and queues. (8)
12. (a) Demonstrate the division of 1100_2 by 101_2 using restoring method, draw block diagram and explain the operation. (16)

Or

- (b) (i) Explain the Ripple carry multiplier with $(m_3m_2m_1m_0)(q_3q_2q_1q_0)$ inputs. (8)
- (ii) Multiply (-12) and (13) using booth's algorithm. (8)
13. (a) Explain the operation of hard wired control unit. (16)

Or

- (b) (i) Explain how gating is achieved in registers. (6)
- (ii) Discuss in detail about hazards due to unconditional branching. (10)
14. (a) Explain about direct mapping and set associative mapping in Cache memory. (16)

Or

- (b) Explain about virtual memory and its management. (16)
15. (a) (i) Explain in detail about direct memory access methods (DMA). (10)
- (ii) Explain about vectored interrupt with daisy chain arrangement. (6)

Or

(b) Write short notes on :

(i) Interface circuits

(ii) SCSI

(iii) Polling

(iv) Addressing of I/O devices.

(16)