Q. P. Code: 25078

Time:-3 Hours **Marks:-80**

N.B (1) Question No. 1 is compulsory

(2) Attempt any 3 questions from remaining questions

(3) Figures to the right indicate full marks.

Q.1 a. Solve using Booth's algorithm Multiplicand M=+7 and Multiplier Q=+3. 5

b. Write microinstructions for the instruction ADD R3, R2, R1. 5

c. Explain SIMD computer organization. 5

d. Explain various types of memories 5

Q.2 a. What is cache coherency? Explain various methods to achieve it. 10

b. Explain various pipelining hazards and solutions for the same. 10

Q.3 a. Explain micro-programmed control unit with a neat diagram. 10

b. Explain briefly various cache mapping techniques 10

Q.4 a .What is virtual memory? Explain how paging is implemented in virtual memory. 10

b. Find page fault for the following string using FIFO, LRU and LFU page 10

Replacement policies for the page address stream 2 1 2 3 1 5 4 2 1 5.

Consider page frame size n=3.

Q.5 a. Explain various DMA transfer modes. 10

b. Explain Flynn's classification. 10

Q.6 a. Explain various bus arbitration techniques. 10

b. Explain the register structure of IA-32 family. 10

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