24487

B.Tech. 7th Sem.
(Computer Science Engineering)
Examination–May, 2013

ADVANCED COMPUTER ARCHITECTURE

Paper CSE-401-F

Time : 3 hours   **Max. Marks : 100**

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard will be entertained after the examination.

Note : Question No. 9 is compulsory. Attempt **five** questions in total selecting **one** question from each of the four Section.

SECTION – A

1. (a) Compare hardwired control with micro-programmed control.   6

   (b) WAP in assembly language to add a constant value #X to each element of an array in L/S and R/M arch mode.   14

2. (a) A 2.3 cm² die can be fabricated on a 15 cm wafer at a cost of ₹5,000, or on a 20 cm wafer at the cost of ₹6,000. Compare the effective cost per die for defect densities of 0.4 defect/cm² and 0.9 defects per cm². **15**

(b) Briefly explain clock skew and cycle quantization. **5**

SECTION – B

3. (a) Explain various Cache write policies. **10**

(b) In two level Cache system, we have **10**

- L1 size 8 KB with 4w set assoc, 16B lines (WTNWA)

- L2 size 64 KB, direct mapping, 64B lines and CBWA.

Suppose the miss in L1, hit in L2 delay in 3 cycles and the miss in L1, miss in L2 delay is 10 cycles. The processor makes 1.5 reference/I :

(a) What are L1 and L2 miss rates ?

(b) What is the expected CPI loss due to Cache misses.

4. (a) Explain fully associative mapping scheme for Cache memory. **10**

(b) Explain write assembly Cache, split Cache in detail. **10**

SECTION – C

5. Explain Hellerman's Strecker's and Rau's memory model in detail. **20**

6. Explain open and closed queue models in detail. **20**

SECTION – D

7. Why memory coherence is essential in shared memory multiprocessors. Explain the various approaches and protocols to maintain this. **20**

8. Write notes on : **20**

(a) Partitioning

(b) Vector processor

(c) VLIW.

9. Compulsory question :

(a) Define state, cycle, command process.

                                             5

(b) Describe locality of reference and its type.

                                             5

(c) How address space is assigned to different memory modules ?

                                             5

(d) Explain the various run-time scheduling techniques.

                                             5