

24487

**B.Tech. 7th Semester (CSE)  
Examination, December-2015**

**ADVANCED COMPUTER ARCHITECTURE**

**Paper-CSE-401-F**

*Time allowed : 3 hours]*

*[Maximum 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 : Attempt five questions. Question No. 1 is compulsory. Select one question from each section.*

1. (a) What are the basic data type ? Explain briefly.
- (b) What is Split-I and D-caches ?
- (c) What is memory Module ?
- (d) What is vector processor ?
- (e) What is two level cache ?

**Section-A**

2. (a) Assume a wafer has diameter of 21 cm and costs 5000 for a particular production run. Compute the cost per die for die area =  $2.3 \text{ cm}^2$  and for  $1 \text{ cm}^2$  if  $p_D = 1 \text{ defect/cm}^2$ .
- (b) Explain processor evaluation matrix.

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[P.T.O.]

## Section-D

(3)

8. (a) Compare Vector and Multiple-Issue Processors  
 (b) What are the issue which effect the performance of a vector processor.
9. (a) Discuss partitioning in multiprocessor.  
 (b) What are the different type of shared memory multiprocessors? Explain.

(2)

## Section-B

3. (a) Explain basic instruction timing with example.  
 (b) What is Virtual to Real mapping? Explain.

4. (a) Explain various cache write policies.  
 (b) Explain strategies for line replacement at miss time.
5. (a) We have two level cache with miss rate of 4%(L1) and 1%(L2). Suppose the miss in L1 and Hit in L2 penalty is 2 cycle, and the miss penalty in both caches is 7 cycle(5cycle more than a hit in L2). If a processor makes 1.5 reference instruction, compute the excess CPI due to cache miss.  
 (b) What are three general approach to avoiding the serial translation step in cache access.

## Section-C

6. Describe memory modeling using queuing theory. Explain closed queues model in detail.
7. (a) What are the various step in the design of the memory system? Explain.  
 (b) Describe Hellerman's and Rau's model in detail.