

Roll No. ....

**24487**

**B. Tech. 7th Semester  
(Computer Science Engineering)  
Examination – December, 2012**

**ADVANCED COMPUTER ARCHITECTURE**

**Paper : CSE-401-F**

**Time : Three 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 examination.*

**Note :** Question No. 1 is *compulsory*. Attempt five questions in total selecting one question from each Section.

1. (a) Define state and cycle.  $8 \times 2.5 = 20$   
(b) Compare horizontal and vertical instructions.  
(c) What is cycle quantization ?  
(d) Is n-segment pipelining increases speed by  $n$  time ? Justify your answer.

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- (e) Compare cold and warm caches.
- (f) Define memory bank and memory module.
- (g) What are major run-time overheads in runtime scheduling in shared memory multiprocessors.
- (h) What is locality of reference ?

### SECTION – A

- 2. (a) Describe virtual to real mapping method. 6
- (b) WAP in assembly language to subtract a constant value # X from each element of an array in L/S and R + M mode. 14
- 3. (a) Describe expression for performance, throughput, sopt and total instruction execution time for pipelining processing. 15
- (b) Explain various kinds of overheads in pipelining processing. 5

### SECTION – B

- 4. (a) Describe set-associative mapping scheme for cache memory. 10
- (b) Explain various page replacement policies. 10

5. (a) Explain various cache write policies. 10  
(b) Describe Level caches and Sector cache in detail. 10

### SECTION – C

6. Explain mixed queue model and delta-binomial model in detail. 20  
7. Describe Rau's, strecker's and Hellerman's memory model in detail. 20

### SECTION – D

8. Write notes on : 20  
(a) Scheduling in shared memory multiprocessors,  
(b) Vector processors.  
9. Explain the following : 20  
(a) Snoopy and directory based protocols,  
(b) Multiple issue machines.
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