FACULTY OF INFORMATICS

B.E. 3/4 (IT) II-Semester (**Main**) Examination, May / June 2011

Subject : **Advanced Computer Architecture** (Elective – I)

Time : 3 Hours

Max. Marks: 75

Note: Answer all questions of Part-A and
answer any **Five** questions from Part-B.

PART-A (25 Marks)

1.	What are Bernstein's conditions for parallelism?	2
2.	Differentiate between static and dynamic scheduling.	3
3.	Describe the merits and demerits of CISC and RISC architectures.	3
4.	What are the five types of data dependencies?	2
5.	What are the reasons for cache inconsistency?	3
6.	What are the different vector instruction types?	2
7.	Describe about local and global optimizations.	3
8.	Describe about macrotasking, microtasking and auto tasking.	3
9.	What are architectural development tracks?	2
10.	Describe the explicit and implicit parallelisms.	2

PART-B (50 Marks)

11.a) What are the system attributes for performance? 3

  b) Describe the architecture of a vector super computer. 7

12.a) Describe the course level, fine level and medium level of parallelism. 3

  b) With a diagram, explain the design of a cross bar switch. 7

13.a) Describe the concept of overlapping register windows for faster execution. 4

  b) Describe the three properties of memory hierarchy, namely, inclusion, coherence and locality. 6

14. For the following reservation take, calculate the collision vector, draw the State diagram and calculate average latency in cycles. 10

	1	2	3	4	5	6	7	8
S₁	X					X		X
S₂		X		X				

15.a) Differentiate between superscalar and super pipeline executions. 4

 b) With a diagram, describe wired barrier synchronization. 6

16.a) Describe the different language features for parallelism. 4

 b) Explain about write back, write through and write invalidate policies for cache consisting. 6

17.a) What are the domain decomposition techniques for swapping programs into multicomputers? 4

 b) Describe the various synchronization mechanisms for multiprocessing. 6

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