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# SATHYABAMA UNIVERSITY

(Established under section 3 of UGC Act, 1956)

Course & Branch: M.E-W-AEL/AEL

Title of the Paper: Computer Architecture and Parallel Processing

Max. Marks: 80

Sub. Code: SCSX5035

Time: 3 Hours

Date: 11/12/2010

Session: FN

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PART - A

(6 X 5 = 30)

Answer ALL the Questions

1. Explain the architecture of a vector super computer.
2. Describe how node duplication is used to eliminate communication delays between processors.
3. Discuss the architecture of a VLIW processor and its pipeline operations.
4. Explain the masking and data-routing mechanisms in SIMD computers.
5. Compare the features of loosely-coupled multiprocessors and tightly-coupled multiprocessors.
6. Explain how sole-access protocols are used for implementing efficient synchronization schemes in multiprocessing.

PART – B (5 x 10 = 50)  
Answer ALL the Questions

7. Describe the different types of dependencies with suitable examples.  
(or)
8. Explain the categories of parallel processing mechanisms in uni-processor computers.
9. With neat diagram, explain the architecture of Intel 1860 RISC processor.  
(or)
10. Describe how data buffering and busing structures are used to avoid congestion in pipelining.
11. Implement a matrix multiplication operation on an SIMD computer with necessary algorithms.  
(or)
12. Describe the associative memory organization in array processors.
13. Discuss the various multistage networks for multiprocessors. State their merits and demerits.  
(or)
14. Explain the synchronized and asynchronous parallel algorithms with suitable example.
15. Describe the various levels of multitasking for parallel execution on Cray multiprocessors.  
(or)
16. Explain the domain decomposition techniques in multicomputer programming with an example.