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SATHYABAMA UNIVERSITY

(Established under section 3 of UGC Act,1956)

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

Max. Marks :80

Title of the Paper :Computer Architecture and Parallel Processing

Sub. Code :SCSX5035

Time : 3 Hours

Date :27/05/2011

Session :AN

PART - A

(6 x 5 = 30)

Answer ALL the Questions

1. Describe the features of the three shared memory multiprocessor models.
2. What is Locality of reference? What are its types? Explain its effect in Memory hierarchy.
3. Explain the use of reservation tables in pipelining.
4. Explain the masking and data routing mechanisms in array processors using an example.
5. Describe the processor characteristics for multiprocessing.
6. Explain the use of spin lock and suspend lock using an example.

PART – B

(5 x 10 = 50)

Answer ALL the Questions

7. (a) Describe the characteristics of static connection networks.
(b) Compare Control flow, data flow and reduction computers.

(or)

8. (a) Discuss the issues related to communication latency and scheduling.
(b) Explain the various issues in exploiting parallelism.
9. (a) Explain the various page replacement policies.
(b) Explain the features of superscalar processors.
(or)
10. (a) Explain the design issues of Instruction pipelining.
(b) Describe the characteristics of RISC processors.
11. Describe the features of various SIMD interconnection networks.
(or)
12. (a) Write the parallel sorting algorithm on array processors and illustrate using an example.
(b) Classify associative search operations. Explain each class.
13. (a) Explain the different methods used for handling deadlocks.(4)
(b) Explain the various ways of organizing interconnection networks in Multiprocessors. (6)
(or)
14. (a) Describe the characteristics of the different organizations used in the design of Multiprocessor operating systems.
(b) Explain the various process synchronization mechanisms used in Multiprocessor environment.
15. (a) Explain the issues related to heterogeneous processing.
(b) Explain how the sole access protocols serialize the conflicting atomic operations.
(or)
16. (a) Explain the various Multiprocessor execution modes.
(b) Explain the various program decomposition techniques.