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**Department of Computer Science and Engineering**

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**ACA QUESTION BANK**

**Module: 1**

1. What is computer architecture explain it?

2. What is SIMD ?briefly explain.

3. Compare programming partitioning and program flow mechanisms ?

4. What is speed up explain Amdahl‘s law ?

5. Explain Scalability Analysis and Approaches?

6.Explain hardware and software parallelism.

7.Explain program flow mechanism.

8.List all the system attributes affecting the performance of computer and explain.

9.Explain the evolution of computer architecture.

10.Explain the architecture of vector super computers.



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**Module: 2**

1. What are the different hardware technologies ?

2. Explain Memory Hierarchy with neat diagram ?

3. Explain different advanced technologies and Superscalar operation ?

4. Explain Vector Processors & Virtual Memory Technology?

5.Explain shared memory multiprocessor.

6.Explain typical scalar RISC processor architecture.

7.Explain address translation mechanism using TLB and page table.

8.what are the virtual memory models for the multi processor system.

9.What are the characteristics for the RISC and CISC architecture.

10.Explain inclusion, coherence and locality properties.

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**Module: 3**

1. What is Shared Memory organization explain ?

2. Explain ,Cache Memory Organizations?

3. Compare Sequential and Weak Consistency Models?

4. Write a short note on Pipelining and Superscalar Techniques?

5. Explain Arithmetic Pipeline Design with diagram ?

6. What is arbitration? Explain different types of arbitration.

7. What are the different techniques of branch predictions? Explain.

8. Explain multiply pipeline design to multiply two 8-bit integers.

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**Module: 4**

1. Difference between Multiprocessors and Multi computers ?

2. What is Cache Coherence and explain ?

3. What is Compound Vector Processing and explain ?

4. Explain Multithreaded, and Dataflow Architectures ?

5. Explain different Multithreading techniques ?

6.Explain context switching policies.

7. Explain the architecture of connection machine CM-2

8. Explain routing in omega network.

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**Module: 5**

1. Explain different Languages, and Compilers for parallel programming ?

2. Explain Parallel Program Development and Environments?

3. Explain Instruction and System Level Parallelism ?

4. Write a short note on Register Renaming ,Tomasulo‘s Algorithm?

5. How to Exploit Instruction Level Parallelism and Thread Level Parallelism?

6. What are the issues in using shared variable model?

7. Explain different phases of parallelizing compiler with diagram

8. Explain tomasulo’s algorithm.

9. What is operand forwarding? Explain reorder buffer and register renaming.

10. What are the principles of synchronization mechanism? Explain them.