**SSN COLLEGE OF ENGINEERING, KALAVAKKAM – 603110**
**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING**
**VIII Sem B.E COMPUTER SCIENCE AND ENGINEERING**
**CS6801 MULTICORE ARCHITECTURES & PROGRAMMING**

Internal Assessment Test - I

**Class: VIII Sem B.E(A & B)** **Date: 17-1-2018**
**Time: 8.00AM TO 9.30AM** **Max Marks: 50**

**Part – A (5 x 2 = 10 marks)**

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| 1. What are the limitations of single core systems ? [CO1, K1] |
| 2. In our discussion of parallel hardware we used Flynn's toxonomy to identify 3 types of parallel systems: SISD ,SIMD and MIMD. None of our systems were identified as Multiple Instructin and Single Data or MISD. How would a MISD system work. Give an example. [CO1, K2] |
| 3. What is Cache coherence. [CO1, K1] |
| 4. Why does a cross bar switch is a non blocking switch? [CO1, K2] |
| 5. Suppose you want to achieve a speedup of 80 with 100 processors.What fraction of original computation can be sequential. [CO1, K3] |

**Part – B (40Marks)**

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| 6. Write a note on various interconnection networks. [CO1, K1] (16) |
| (or) |
| 7.What is cache coherence. Explain briefly about the solutions for cache coherence. [CO1, K1] (16) |
| 8.a)Does the addition of cache and virtual memory to a Von Neumann system change its designation as SISD system? What about the addition of (a) pipelining (b) Multiple Issue (c) Hardware Multithreading ? [CO1, K3] (8)<br>8 b) A program repeatedly executes a loop that has 120 iterations. Each iteration has 10,000 cycles. On a multiprocessor system 50,000 cycles are needed to synchronize the processors once all the iterations of the loop have completed.<br>a)What is the execution time on a Uniprocessor system.<br>b) What is the execution on a 2 processor system. What is the speedup over the uniprocessor system.<br>c) What is the execution on a 4 processor system. What is the speedup over the uniprocessor system<br>[CO1, K3] (8) |

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| (or) |
| 9.What are SIMD systems. Explain in detail the different types of SIMD systems [CO1, K2] (16) |
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| 10. What are multi core architectures what are the Advantages and Disadvantages of Multicore Processors. Give their applications. [CO1, K2] (8) |
| (or) |
| 11. Show a two level hierarchical bus assuming a Distributed memory Multiprocessor system with a processor with its local cache at it leaf ( last node) and the main memory at the root and cache block at level1.<br>b) Each processor connects a centralized memory unit. 16 processors connect the system bus at (level1) of 400MB/sec. What is the bandwidth available to each processor if all the processors connect the system bus to the memory unit and IO bus of (level2) of bandwidth 40MB/sec in a time sharing bus system**.** [CO1, K3] (8) |

***** ALL THE BEST *****

| Prepared by | Reviewed by HOD-CSE |
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