Code No. : 5295/M

FACULTY OF INFORMATICS
B.E. 3/4 (IT) II Semester (Main) Examination, May/June 2012
ADVANCED COMPUTER ARCHITECTURE (Elective – I)

Time: 3 Hours] [Max. Marks : 75

Note : *Answer **all** questions from Part **A**. Answer **five** questions from Part **B**.*

PART – A **(25 Marks)**

1. Explain node duplication in static multiprocessor scheduling. **3**

2. Define computational granularity, control dependence and Bisection width. **3**

3. Give some salient features of a super scalar processor. **2**

4. Define inclusion property and coherence property. **2**

5. List the limitations of Crossbar Networks. **3**

6. What is a Vector Reduction Instruction ? **2**

7. Explain briefly the synchronous paradigm in synchronous message passing. **3**

8. What is dependence testing ? **2**

9. Distinguish between spin locks and suspended locks for sole access to a critical section. **2**

10. Present a monitor structure. **3**

PART – B **(50 Marks)**

11. State Bernstein's conditions. Explain detection of parallelism in a program using Bernstein's conditions using a suitable example.

12. Present Asynchronous and synchronous pipeline models and the corresponding reservation table.

13. Describe the following techniques to accomplish Latency-Hiding :
    a) Perfetching
    b) Coherent caches.

14. Explain Wavefronting approach for fine-grain parallelization.

15. Explain how object-oriented approach to parallel programming offers a formal basis for decomposing the data structures and threads of control in user program.

16. Explain the following :
    a) Dynamic Networks.
    b) Hyper cube routing function.
    c) Parallelism in concurrency as experienced in object oriented programming.

17. Write notes on :
    a) Multitasking Trade-offs.
    b) Shared variable model for parallel programming.
    c) Dynamic Network characteristics of Bus System.
