B. Tech Degree VII Semester (Supplementary) Examination, July 2009

CS 704 ADVANCED ARCHITECTURE AND PARALLEL PROCESSING
(2002 Scheme)

Time : 3 Hours   Maximum Marks : 100

I.   (a) With a suitable example, explain Parallelism. Also describe any three techniques used in sequential systems to achieve parallelism. (12)
     (b) Describe the cross bar switch interconnection network and its merits and demerits. (8)
                                                    OR
II. (a) With block diagrams, describe the UMA and NUMA architectures. (10)
     (b) Explain Flynn's classification of Parallel Computers. (10)

III. (a) Explain the design of an arithmetic pipeline for 8 bit multiplication. (12)
     (b) Discuss in-order-issue and out-of-order issue for a Super Scalar Processor. (8)
                                                    OR
IV. (a) Distinguish between Static and Dynamic pipelining. (12)
     (b) Differentiate between a CSA and a CPA. (8)

V.   (a) Describe any four desirable features of a multiprocessor Operating System. (8)
     (b) Briefly discuss the four different types of data dependencies. (12)
                                                    OR
VI. (a) Discuss any two parallel programming models in detail. (10)
     (b) Describe Loop and Array Dependence Analysis. (10)

VII. (a) Explain the Thread implementation in Java. (10)
     (b) Give and explain the outline of a Java program for deviation computation. (10)
                                                    OR
VIII.(a) Describe the message passing model. (10)
     (b) Explain the Parallel Virtual Machine. (10)

IX. (a) Discuss any two parallel sorting algorithms. (10)
     (b) Describe how a message passing parallel program can be debugged. (10)
                                                    OR
X.   (a) Briefly explain the issues in the design of distributed databases. (10)
     (b) Describe any two design goals for distributed Operating System. (10)

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