2011-2012
M.TECH. (III SEMESTER) EXAMINATION
(COMPUTER SCIENCE & ENGINEERING)
PARALLEL COMPUTING
(CO-610)

Maximum Marks: 75
Duration: Three Hours

Answer all questions.

1.(a) Why do we need high performance computers? Justify with suitable examples. 3x5
(b) Discuss various performance measures that affects the speed of the computer system.
(c) Among various processor organizations which one is better, discuss their various performance indices.

2.(a) Discuss the properties and factors of an interconnection network that affects the performance of the computer system. 3x5
(b) Discuss various elementary permutations used in interconnection networks.
(c) Discuss the basis upon which interconnection network design decisions are made.

3.(a) Compare the three interleaved memory organizations on the basis of various Trade-offs. Draw the circuit and explain the limitation of 4-way interleaved memory organization. 3x5
(b) Discuss the reasons for the dead-lock and its solutions in multiprocessor system.
(c) Discuss the cache-coherence problems and explain their solutions.

4.(a) Discuss multiprocessor scheduling strategies and explain any dynamic scheduling on a multiprocess using the concept of FORK-JOIN. 3x5
(b) Discuss and implement cost optimal algorithm for prefix computation.
(c) Distinguish between UMA and NUMA multiprocessor model.

OR

4'(a) What is the significance of an abstract m/c? Discuss the type of PRAM models and implement search algorithm on these models. 7
(b) Distinguish between Mining, Searching and Crawling. Discuss which of the crawling model of parallel crawler is better than others. 8
5. Write technical notes on three of the following:

(a) Cloud computing
(b) Software agent
(c) Parallel programming environment
(d) Heterogeneous processing
(e) Parallelism and Pipelining
(f) Complexity of algorithm