2012-13
M.TECH AUTUMN (III SEMESTER) EXAMINATION
(COMPUTER SCIENCE & ENGINEERING)
PARALLEL COMPUTING
(CO - 610)

Maximum Marks: 60
Duration: Three Hours

Answer all questions (Make relevant assumptions wherever required)

NOTE: “Students governed by the old ordinances will be examined out of 75 marks and their obtained marks shall be proportionately raised”

1 (a) Why do we need high performance computers? Justify with suitable examples. 5
(b) How is the performance of a computer system evaluated? Discuss various techniques to enhance the performance of the system. 10

OR

1’ (a) Differentiate between Parallelism and Pipelining. Discuss dynamic pipelining and its effects on the performance of the system. 8
(b) Differentiate between Amdahl’s Law and Gustafson-Barsis’ Law with examples. 7
Draw and explain various speed-up curves.

2 (a) What is the function of the cache memory? Draw the flowchart to explain the fetch operation performed by the cache memory. 7
(b) Discuss the cache coherency problem and its remedies. 8

OR

2’ Write Technical notes on:
(i) BSP and LogP model.
(ii) Interleaved memory organization.
(iii) Parallel Crawler. 5x3

3 (a) Design an interconnection SIMD parallel computer having eight processors. 10
Draw and discuss its single/multistage connections and its routing functions and control strategies.
(b) Discuss the properties and factors of an interconnection network that affects the performance of the computer system. 5

4 (a) Discuss the merits and demerits of PRAM model. Discuss sorting algorithm on various PRAM models. 8
(b) Discuss and implement cost-optimal algorithm for Prefix-sum computation on a Parallel computer. 7