

(Following Paper ID and Roll No. to be filled in your Answer Book)

**PAPER ID : 2710**

Roll No.

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**B.Tech.**

(SEM. VII) ODD SEMESTER THEORY

EXAMINATION 2013-14

**PARALLEL ALGORITHMS**

*Time : 3 Hours*

*Total Marks : 100*

**Note :- Attempt all questions.**

1. Attempt any two parts : **(10×2=20)**
- (a) (i) Define the sequential model. Explain with the help of its diagram. Why we required an alternate model ? Give the reasons in brief.
- (ii) What do you mean by interconnection networks ? Explain the following in brief :
- (I) Hyper cube
- (II) Butterfly
- (III) Ring and Chordal Ring.
- (b) (i) How to simulate a stronger PRAM model on weaker ones ? Write down the algorithm.
- (ii) Describe the Efficiency, Speed-up and Computation time in detail.
- (c) (i) Describe the Models of computations in brief.
- (ii) What is the analyzing of parallel algorithms ? Explain.

2. Attempt any two parts :

(10×2=20)

(a) (i) Sort the following contents of the linear array by odd-even transposition algorithm :

$X = ('G', 'H', 'F', 'D', 'E', 'C', 'B', 'A')$ .

(ii) Write down the algorithm for Enumeration sort for CRCW model.

(b) Explain the odd-even transposition sort. Do you think it is accurate to describe odd-even transposition sort as a parallel bubble sort ? Give your views.

(c) Which of the following sequences are bitonic sequences ?

(i) 8, 4, 2, 1, 2, 5, 7, 9

(ii) 1, 9, 7, 3, 2, 5

(iii) 1, 3, 6, 4, 7, 9

(iv) 3, 3, 4, 5, 2

(v) 6, 2, 6, 9, 7.

3. Attempt any two parts :

(10×2=20)

(a) (i) What is the Flynn's Classification ? Explain all classifications.

(ii) Explain the following :

(I) Pipeline Computer

(II) Array Computer

(III) Multiprocessors.

(b) Describe the multiprocessor oriented parallel quick sort algorithm, with an example.

(c) Describe the following in brief :

(i) Distributed tree search for parallel alpha-beta search.

(ii) Sequential alpha-beta search.

4. Attempt any two parts :

(10×2=20)

(a) Explain the parallel searching, also discuss any one parallel searching algorithm in detail.

(b) Explain the row-column-oriented algorithm for matrix multiplication for multicomputer.

(c) Write short notes on the following in brief :

(i) Pointer jumping

(ii) Vector-multiplication.

5. Attempt any two parts :

(10×2=20)

(a) What is the concept of graph traversal ? Explain breadth-first traversal with help of example.

(b) Explain the parallel branch and bound search in brief.

(c) Define the Spanning trees and also explain the Kruskal's algorithm and Prim's algorithm with the help of example.