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NPTEL

reviewer4@nptel.iitm.ac.in ▼

Courses » Parallel Algorithms

Announcements   **Course**   Ask a Question   Progress   FAQ

Unit 3 - Week 02: Performance of parallel algorithms,Basic techniques

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Certification exam

Course outline

How to access the portal

Week 01: Models of Computation

Week 02: Performance of parallel algorithms,Basic techniques

● Lecture 1: Cost and Optimality

● Lecture 2: Basic Techniques 1

● Lecture 3: Basic Techniques 2

○ Quiz : Assessment 2

Week 03: Basic Techniques

Week 04: Comparator Networks; List Colouring

Week 05: An Optimal List

Assessment 2

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.   **Due on 2019-02-13, 23:59 IST.**

1) The number of edges in a linear array of n nodes is _____   *1 point*

   ○ n-1

   ○ n

   ○ n+1

   ○ 2n

No, the answer is incorrect.
Score: 0

Accepted Answers:
n-1

2) The number of edges in a 3X5 mesh is _____   *1 point*

   ○ 8

   ○ 15

   ○ 22

   ○ 24

No, the answer is incorrect.
Score: 0

Accepted Answers:
22

3) The number of edges in a 4-dimensional hypercube is _____   *1 point*

   ○ 16

   ○ 32

   ○ 64

4) Which of the following CRCW PRAM variants is not known to be self-simulating?   *1 point*

- ○ Common
- ○ Tolerant
- ○ Arbitrary
- ○ Priority

No, the answer is incorrect.
Score: 0

Accepted Answers:
Tolerant

5) Suppose we have three sorting algorithms X1, X2, and X3 on PRAMs.   *1 point*
X1 runs in $O(\log n)$ time using $n \log n$ processors.
X2 runs in $O(\log^2 n)$ time using $n/\log n$ processors.
X3 runs in $O(\log n \log \log n)$ time using $n/\log \log n$ processors.
Which of the algorithms is/are optimal?

- ○ only X1
- ○ only X1 and X3
- ○ only X2
- ○ only X2 and X3

No, the answer is incorrect.
Score: 0

Accepted Answers:
only X2 and X3

6) A CREW PRAM algorithm of 4 steps have degrees of parallelism of 10, 14,   *1 point*
8 and 22 in its four steps. On a PRAM with 12 processors, the algorithm can be
simulated in ___ steps.

- ○ 4
- ○ 5
- ○ 6
- ○ 8

No, the answer is incorrect.
Score: 0

Accepted Answers:
6

7) When the balanced binary tree based parallel algorithm for finding prefix *1 point*
sums is run on "1 2 4 6 9 13 18 25", what is the value send to the right child by
the internal node whose sum is 65?

- ○ 13
- ○ 18
- ○ 22
- ○ 35

No, the answer is incorrect.
Score: 0

Accepted Answers:
35

8) The pointer jumping based list ranking algorithm that we studied   ***1 point***
this week has a cost of

○
$O(n \log n)$

○
$O(n)$

○
$O(n/\log n)$

○
$O(\log n)$

No, the answer is incorrect.
Score: 0

Accepted Answers:
$O(n \log n)$

9) Pointer Jumping allows us to broadcast a piece of information over   ***1 point***
_____nodes in k steps.

○ k

○ k+1

○ 2k

○
2^k

No, the answer is incorrect.
Score: 0

Accepted Answers:
2^k

10) An array Next is used to define a linked list in the following manner: ***1 point***
Next[1]=6; Next[2]=3; Next[3]=NULL; Next[4]=5; Next[5]=1; Next[6]=8; Next[7]=2;
Next[8]=7. Which node is ranked 1?

○ 4

○ 3

○ 1

○ 8

No, the answer is incorrect.
Score: 0

Accepted Answers:
4

Previous Page   End