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

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

The number of edges in a linear array of n nodes is n-1.
The number of edges in a 3X5 mesh is 22.
The number of edges in a 4-dimensional hypercube is 64.
4) Which of the following CRCW PRAM variants is not known to be self-simulating?
- 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. 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, 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 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 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 _____ 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:

- 4
- 3
- 1
- 8

No, the answer is incorrect.
Score: 0
Accepted Answers:
- 4