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NPTEL

reviewer4@nptel.iitm.ac.in ▼

Courses » Parallel Algorithms

Announcements

Course

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Unit 4 - Week 03: Basic Techniques

Register for
Certification exam

Course outline

How to access
the portal

Week 01: Models
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Week 02:
Performance of
parallel
algorithms, Basic
techniques

Week 03: Basic
Techniques

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Basic
Techniques 3

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● Lecture 3:
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○ Quiz :
Assessment 3

Week 04:
Comparator
Networks; List
Colouring

Week 05: An
Optimal List
Ranking

Assessment 3

The due date for submitting this assignment has passed.

As per our records you have not submitted this **Due on 2019-02-20, 23:59 IST.**
assignment.

1) When the minimum algorithm that uses accelerated crowding on COMMON CRCW **1 point**
PRAM is invoked on an array of size n with $2n$ processors, the size of the problem after the third size
reduction is

- $n/8$
 $n/7$
 $n/128$
 $n/256$

No, the answer is incorrect.

Score: 0

Accepted Answers:

$n/128$

2) If the divide and conquer algorithm for finding prefix sums is run on "4, **1 point**
8, 1, 3, 9, 6, 8, 7", then what is the last operation performed to find the prefix sum
value corresponding to input element 6?

- $9+6$
 $26+5$
 $25+6$
 $16+15$

No, the answer is incorrect.

Score: 0

Accepted Answers:

$16+15$

3) With p processors, where $1 \leq p \leq n \log \log n$, the minimum **0 points**
of n numbers can be found on a CRCW PRAM in $\Theta(\quad)$ time.

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Funded by

Expression Tree
Evaluation,
Merging and
Cole's Merge
Sort

Week 07: Cole's
Merge Sort,
Sorting Lower
Bound,
Connected
Components

Week 08:
Connected
Components,
Vertex Colouring
and
Interconnection
Networks
Algorithms

Week 09:
Interconnection
Networks
Algorithms

Interaction
Session

Week 10:
Interconnection
Networks
Algorithms

Week 11:
Interconnection
Networks
Algorithms

Week 12:
Parallel
Complexity
Theory

n/p

No, the answer is incorrect.

Score: 0

Accepted Answers:

n/p

4) When key value 10 is searched in an array that contains "4, 6, 8, 13, 15, 17, 19" with six processors assigned to the first six elements of the array, on a CREW PRAM, using Algorithm Search-1, which is the processor that reports the rank of 10 in the array?

- the first
- the third
- the fourth
- all of them together

No, the answer is incorrect.

Score: 0

Accepted Answers:

the third

5) When a key value is searched in an array with six processors on a CREW PRAM, using Algorithm Search-2, the range of search reduces by a factor of _____ in each step.

- 2
- 5
- 6
- 7

No, the answer is incorrect.

Score: 0

Accepted Answers:

7

6) Consider the optimal merge algorithm studied in Lecture 8. Consider the two sorted arrays: $A = \langle 3, 7, 10, 14, 18, 27, 35, 49 \rangle$ and $A' = \langle 3, 14, 35 \rangle$. If $B = \langle 4, 9, 15, 26, 29, 33, 34, 53 \rangle$ and are the leader arrays, then $B' = \langle 4, 26, 34 \rangle$ the number of elements left in that charge of leader 26 is _____.

- 0
- 1
- 3
- 4

No, the answer is incorrect.

Score: 0

Accepted Answers:

3

7) The minimum number of colours required to vertex colour a cycle of seven nodes is _____.

- 2

- 3
 6
 7

No, the answer is incorrect.

Score: 0

Accepted Answers:

3

8) If three consecutive nodes x, y and z of a linked list are coloured 43, 12 and 28 respectively now, then after one step of symmetry breaking, the colours of x and y would be _____ respectively **1 point**

- 1 and 8
 1 and 10
 2 and 7
 6 and 6

No, the answer is incorrect.

Score: 0

Accepted Answers:

1 and 8

9) Say, $a=12$ and $b=28$. Let c be the bitwise XOR of a and b . Let $d=c-1$. Then the bitwise XOR of c and d has a numerical value of _____ **1 point**

- 4
 5
 15
 31

No, the answer is incorrect.

Score: 0

Accepted Answers:

31

10) If a linked list is now coloured using 14-bit natural numbers, then after one step of symmetry breaking, it would be coloured using natural numbers of how many bits? **1 point**

- 4
 5
 7
 13

No, the answer is incorrect.

Score: 0

Accepted Answers:

5

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