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NPTEL

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Unit 14 - Week 12: Parallel Complexity Theory

Register for Certification exam

Course outline

How to access the portal

Week 01: Models of Computation

Week 02: Performance of parallel algorithms,Basic techniques

Week 03: Basic Techniques

Week 04: Comparator Networks; List Colouring

Week 05: An Optimal List Ranking algorithm

Week 06: Applications of Optimal List Ranking algorithm, Expression Tree Evaluation, Merging and Cole's Merge Sort

Assessment 12

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment. **Due on 2019-04-24, 23:59 IST.**

1) Consider the following instance of CVP: ***1 point***
$\langle g_1, g_2, g_3, g_4, g_5, g_6 \rangle$, where $g_1 = 1, g_2 = 0, g_3 = \neg g_2$, $g_4 = g_1 \wedge g_3, g_5 = g_1 \vee g_2$, and $g_6 = g_4 \wedge g_5$.
Then g_5 and g_6 are _____.

- 0 and 0
- 0 and 1
- 1 and 0
- 1 and 1

No, the answer is incorrect.
Score: 0

Accepted Answers:
1 and 1

2) A $T(n)$ time bounded deterministic Turing machine can read/write at most _____ tape cells before it halts. ***1 point***

- $T(n)$
- $T^2(n)$
- $O(n)$
- cannot form an estimate with the available information

No, the answer is incorrect.
Score: 0

Accepted Answers:
$T(n)$

- $C(9, 10, 4)$
- $H(10, 4)$

No, the answer is incorrect.
Score: 0

Accepted Answers:
$S(7, 10)$

4) In the reduction, we studied in Lecture 35, from a string of length n, we produce a boolean circuit of size _____ and depth _____ in _____ time using _____ processors on a PRAM. ***1 point***

- $n^{O(1)}, (\log n)^{O(1)}, (\log n)^{O(1)}, n^{O(1)}$ respectively
- $n^{O(1)}, n^{O(1)}, (\log n)^{O(1)}, n^{O(1)}$ respectively
- $(\log n)^{O(1)}, n^{O(1)}, (\log n)^{O(1)}, n^{O(1)}$ respectively
- $(\log n)^{O(1)}, (\log n)^{O(1)}, (\log n)^{O(1)}, n^{O(1)}$ respectively

No, the answer is incorrect.
Score: 0

Accepted Answers:
$n^{O(1)}, n^{O(1)}, (\log n)^{O(1)}, n^{O(1)}$ *respectively*

5) Consider the following instance of NOR-CVP: ***1 point***
$\langle g_1, g_2, g_3, g_4, g_5, g_6 \rangle$, where $g_1 = 1, g_2 = 1, g_3 = g_1$ NOR $g_2, g_4 = g_1$ NOR g_3, $g_5 = g_3$ NOR g_4, and $g_6 = g_4$ NOR g_5. Then g_5 and g_6 are _____

- 0 and 0
- 0 and 1
- 1 and 0
- 1 and 1

No, the answer is incorrect.
Score: 0

Accepted Answers:
1 and 0

6) If the graph in the reduction of Lecture 36 is constructed for the instance of NOR-CVP in Question 5, then G_3 will consist of _____ vertices. ***1 point***

- 11
- 10
- 9
- 8

No, the answer is incorrect.
Score: 0

Accepted Answers:
10

7) If the graph in the reduction of Lecture 36 is constructed for the instance of NOR-CVP in Question 5, then G_1 will consist of _____ vertices. ***1 point***

- 11
- 10
- 9
- 8

No, the answer is incorrect.
Score: 0

Accepted Answers:
8

8) In the flow network constructed from an MCVP2 instance in Lecture 37, the capacity of an edge that is from an input node i to the source s is _____. ***1 point***

- 2^i
- 0
- i
- 1

No, the answer is incorrect.
Score: 0

Accepted Answers:
2^i

9) For the flow network and flow constructed from an MCVP2 instance in Lecture 37, the only edge that can get an odd flow is the one _____. ***1 point***

- from node 1 to node t
- from node 1 to node s
- from node 0 to node t
- from node 0 to node s

No, the answer is incorrect.
Score: 0

Accepted Answers:
from node 0 to node t

10)For the flow network and flow constructed from an MCVP2 instance in Lecture 37, if there were an augmenting path in the residual network, then the first edge of that augmenting path will be a _____ edge. ***1 point***

- zero capacity
- saturated
- forward
- backward

No, the answer is incorrect.
Score: 0

Accepted Answers:
backward

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