Final Exam

Quiz, 10 questions

Congratulations! You passed!

Next Item

1 / 1 points

1.
Of the following dynamic programming algorithms covered in lecture, which ones always perform $O(1)$ work per subproblem? [Check all that apply.]

0.3 / 1 points

2.
Assume that $P \neq NP$. Which of the following problems can be solved in polynomial time? [Check all that apply.]

1 / 1 points

3.
Recall the all-pairs shortest-paths problem. Which of the following algorithms are guaranteed to be correct on instances with negative edge lengths that don't have any negative-cost cycles? [Check all that apply.]

1 / 1 points

4.
Suppose a computational problem Π that you care about is NP-complete. Which of the following are true? [Check all that apply.]

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0.5 / 1 points

5.

Which of the following statements are logically consistent with our current state of knowledge (i.e., with the mathematical statements that have been formally proved)? [Check all that apply.]

0.5 / 1 points

6.

Of the following problems, which can be solved in polynomial time by directly applying algorithmic ideas that were discussed in lecture and/or the homeworks? [Check all that apply.]

1 / 1 points

7.

In lecture we gave a dynamic programming algorithm for the traveling salesman problem. Does this algorithm imply that P=NP? [Check all that apply.]

1 / 1 points

8.

Consider the Knapsack problem and the following greedy algorithm: (1) sort the items in nonincreasing order of value over size (i.e., the ratio v_i/w_i); (2) return the maximal prefix of items that fits in the Knapsack (i.e., the k items with the largest ratios, where k is as large as possible subject to the sum of the item sizes being at most the knapsack capacity W). Which of the following are true? [Check all that apply.]

1 / 1 points

9.

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Which of the following statements are true about the generic local search algorithm? [Check all that apply.]

0.5 / 1 points

10.
Which of the following statements are true about the tractability of the Knapsack problem? [Check all that apply.]