QUIZ 2_ADA 2021 (FS+IoT+GT)

Points: 13/15

1

In Branch and Bound method
(1/1 Point)

- One divides a large problem into few smaller ones, and this is the branching part.
- While the conquering part is done by estimating how good a solution, we can get from each smaller problem.
- Both a and b ✓
- None

2

The order of the worst case time complexity of backtracking algorithms is:
(0/1 Point)

- N^2
- N^3

2^N ✓

N log log N

3

IN TSP branch and Bound, Matrices are reduced by-
(1/1 Point)

Row reduction

Column Reduction

Both ✓

None

4

Choose the correct statements(Multiple correct)
(2/2 Points)

P problems can be solved in polynomial time on deterministic computers ✓

NP problems can be solved in polynomial time on non deterministic computers

NP problems can be solved in polynomial time on deterministic computers

All NP Hard problems lie in set NP. ✓

All NP complete problems lie in NP ✓

5

The goal of branch and bound is to find a value x that _____the values of real-valued function f(x), called an objective function among some set S of admissible or candidate solutions(multiple correct)
(1/1 Point)

- [x] Maximizes ✓
- [x] Minimizes ✓
- [ ] Normalizes
- [ ] Calculates

6

In n-queen problem, the backtrack step is:
(1/1 Point)

- ( ) to place the queen to next available space
- (•) to go to the previously placed queen and place it to next available space ✓
- ( ) to go to the first queen and place it to the next available space
- ( ) to place the queen to the last available space

7

The chromatic number of a complete graph G=(V, E), will be:
(1/1 Point)

- (•) V ✓
- ( ) V^2
- ( ) V×E

- ○ 2* E

8

Choose the correct statement from the following:
(1/1 Point)

- ○ Branch and Bound is more efficient than backtracking.
- ○ Branch and bound is not suitable where a greedy approach is not applicable.
- ◉ Branch and Bound divides the problem into at least 2 new restricted sub problems ✓
- ○ Backtracking divides the problem into at least 2 new restricted sub problems.

9

Choose one or more correct statement/s related with Hamiltonian Circuit algorithm:
(1/1 Point)

- ☑ Hamiltonian circuit may or may not exist in a graph ✓
- ☐ Hamiltonian circuit finding depends upon the choice of initial vertex
- ☐ Algorithm searches the start/ end vertex irrespective of what we give as initial vertex
- ☑ In a complete graph, there would not be any backtrack step required to find the circuit ✓

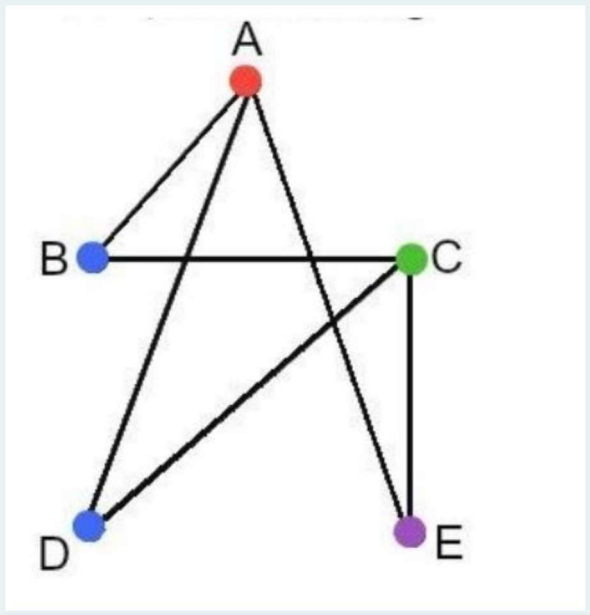
10

Tractable problems are the problems
(2/2 Points)

- ☑ That can be solved in polynomial time ✓
- ☐ That can not be solved in polynomial time

- [ ] Problems cannot be solved by any algorithm
- [x] Problems that lie under the category of decision problems ✓

11



The chromatic number of the following graph would be:
(0/1 Point)

- 1
- 2 ✓
- 3
- 4

12

In n-queen problem, the condition to check whether two queens at positions (i, j) and (k, l) are not attacking each other is/are:
(1/1 Point)

- i ≠ k and j ≠ l

- i ≠ k, j ≠ l, i ≠ j and k ≠ l
- i ≠ k, j ≠ l and i-k≠|j-l|
- i+k≠|j+l| ✓

13

To calculate Upper bound in knapsack Problem:
(1/1 Point)

- Fractional weights are considered.
- Fractional weights are not considered. ✓
- Can be calculated both ways.
- Nothing to do with Weights.

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