CS2223 D Term 2020 Quiz 14

(1 point) Question 1: "My brain is open. . . ."
I pledge that I am taking this quiz on my own, with help from no one else and no notes:

(3 points) Question 2: Greedy Algorithms. . .

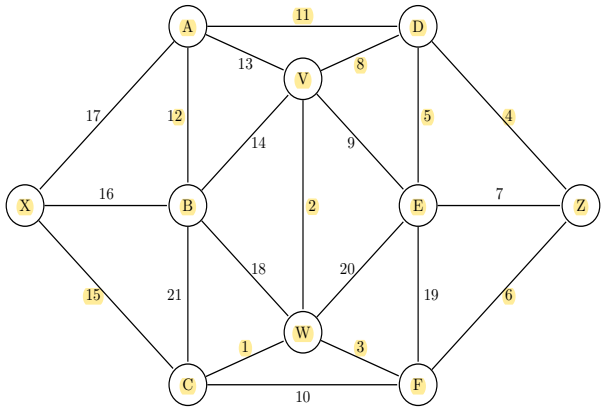
a.) Have factorial time complexity.
b.) Are implemented with dynamic programming techniques.
c.) Make locally-optimal choices at each step.
d.) All of the Above
e.) None of the Above

(3 points) Question 3: A spanning tree of a connected graph on n vertices has:

a.) Exactly $n-1$ edges
b.) Exactly n edges
c.) Exactly $n+1$ edges
d.) Exactly n^2 edges
e.) An unpredictable number of edges but minimum weight

(3 points) Question 4: The edge with which of the following weights does NOT appear in the minimum spanning tree for the graph below?

a.) 4
b.) 5
c.) 6
d.) 7
e.) 8



(1 point) Bonus Question: Why does the 0-1 Knapsack Problem not yield to a greedy algorithm?

a.) It is not feasible to take an object more than once.
b.) Locally optimal choices are not always available.
c.) The irrevocability of moves means we can get stuck with bad early choices.
d.) Our knapsack starts with a fixed size that cannot be changed.
e.) The 0-1 Knapsack Problem is exponential, but greedy algorithms are factorial.