Started on Thursday, October 26, 2023, 11:00 AM
State Finished Completed on Thursday, October 26, 2023, 11:10 AM
Competed on Introduction Control of Control
Grade 7,00 out of 10.00 (70%)
Question 1 Control 2
Correct (100 prints out of 1,00
Which are properties of a minimum spanning tree?
a. There is exactly one path from any node to any other node.
b. There are no cycles.
© c. A MST of n nodes has n-1 edges.
d. All are properties of a minimum spanning tree.
e. None are properties of a minimum spanning tree.
Your answer is correct.
The correct answer is:
All are properties of a minimum spanning tree.
Question 2
Cornet
1.00 points out of 1.00
Why is the time complexity of Kruskal's algorithm O(E log V)?
a. Because each vertex is put into a priority queue, and pulled out (in time O(g m) twice for each edge.
a. Because each vertice plut mo a princip queue, and putted out in time upg by jowlete to each early edge. b. Because the degle must be sorted in OEE log 5 time and this sortion indeed minimal formation and the algorithm.
© . Because the amortized time for doing a disjoint set union operation is O((g n) and this operation must be done n times.
○ d. All of the above are reasons.
e. None of the above is the reason.
Your answer is correct.
The correct answer is:
Because the edges must be sorted in O(E log 2) time and this sorting time dominates all other parts of the algorithm.
Question 3
Correct
100 points out of 1.00
During a run of Kruskal's algorithm on a connected n-node graph, how many make-set operations must be performed?
©& 1
○ b. n-1
® c n ✔
Od. 2n
oe m²
□ f. None of the above.
Your answer is correct.
The correct answer is:
n
Quastion 4
Cornet
100 points out of 1.00
During a run of Kruskal's algorithm on a connected n-node graph, how many union operations must be performed?
0 1
b. elv
© c n
O d. 2n
ે હ જે
None of the above.
Your answer is correct.
The correct answer is:
e-1
Question 5
Correct
100 points out of 1.00
During a run of Kruskal's algorithm on a connected n-node graph, how many find-set operations must be performed?
0.1
0 1
Ob. nd
0 c n
d. 25, where E is the number of edges ✓
○ e. n²
© f. none
$^{\circ}$ f. none

Question 6	
Correct	
1.00 points out of 1.00	
Which of these statements are true: The minimum weight edge of a graph must be part of the MST. The maximum weight edge cannot be part of the MST.	
® a. The first statement is true, the second false. ✓	
b. The first statement is false, the second true.	
C. Both statements are true.	
d. Both statements are false.	
Your answer is correct.	
The correct answer is:	
The first statement is true, the second false.	
Question 7	
Question / Correct	
1.00 peints out of 1.00	
For a given graph G, is its minimum spanning tree unique?	
a. In general there may be more than 1 possible MST.	
b. If edge weights are unique, there is a unique MST.	
c. If the two minimum edge weights are the same, there may be more than 1 possible MST.	
Ø d. All of the above are true. ✓	
e. None of the above are true.	
Your answer is correct.	
The correct answer is: All of the above are true.	
Question 8	
Incorrect 0.00 points out of 1.00	
Let G be an undirected connected graph with distinct edge weight. Let emax be the edge with maximum weight and emin the edge with minimum weight. Which of the following state	month lefters
Let G be an undirected connected graph with distinct edge weight. Let emax be the edge with maximum weight, and emin the edge with minimum weight, which or the following states	ments is raiser
a. Every minimum spanning tree of G must contain emin	
b. If emax is in a minimum spanning tree, then its removal must disconnect G	
C. No minimum spanning tree contains emax	
■ d. G has a unique minimum spanning tree ★	
e. All of the above are false.	
e. All Di the above are raise.	
Your answer is incorrect.	
The correct answer is:	
No minimum spanning tree contains emax	
No minimum spanning tree contains emax	
Question 9	
Question 9 leconect	
Question 9	
Question 9 Incomet	s the weight of a minimum spanning tree?
Question 9 leconect	s the weight of a minimum spanning tree?
Question 9 Incomet	s the weight of a minimum spanning tree?
Question 9 becomes: 000 points out of 1:00 Let G be a connected undirected graph of 11 vertices and 30 edges. The weight of a minimum spanning tree of G is 500. When the weight of each edge of G is increased by five, what it	s the weight of a minimum spanning tree?
Question 9 Incomet 000 points out of 100 Let G be a connected undirected graph of 11 vertices and 30 edges. The weight of a minimum spanning tree of G is 500. When the weight of each edge of G is increased by five, what i a. 500	s the weight of a minimum spanning tree?
Overstion 9 Incomet: 000 points out of 1:00 Let G be a connected undirected graph of 11 vertices and 30 edges. The weight of a minimum spanning tree of G is 500. When the weight of each edge of G is increased by five, what i a. 500 b. 550	s the weight of a minimum spanning tree?
Question 9 Incorrect 0.00 points out of 1:00 Let G be a connected undirected graph of 11 vertices and 30 edges. The weight of a minimum spanning tree of G is 500. When the weight of each edge of G is increased by five, what i a. 500 b. 550 c. 1500	s the weight of a minimum spanning tree?
Question 9 becomes: 100 points and of 100 Let G be a connected undirected graph of 11 vertices and 30 edges. The weight of a minimum spanning tree of G is 500. When the weight of each edge of G is increased by five, what i a. 500 b. 550 c. 1500 d. 2500 ×	s the weight of a minimum spanning tree?
Observation 9 Let G be a connected undirected graph of 11 vertices and 30 edges. The weight of a minimum spanning tree of G is 500. When the weight of each edge of G is increased by five, what i a. 500 b. 550 c. 1500 d. 2500 X e. None of the above	s the weight of a minimum spanning tree?
Question 9 Incorrect Question 9 Let G be a connected undirected graph of 11 vertices and 30 edges. The weight of a minimum spanning tree of G is 500. When the weight of each edge of G is increased by five, what is a. 500 b. 550 c. 1500 ed. 2500 K e. None of the above Your answer is incorrect.	s the weight of a minimum spanning tree?
Observation 9 Let G be a connected undirected graph of 11 vertices and 30 edges. The weight of a minimum spanning tree of G is 500. When the weight of each edge of G is increased by five, what i a. 500 b. 550 c. 1500 d. 2500 X e. None of the above	s the weight of a minimum spanning tree?
Question 9 becomes: Let G be a connected undirected graph of 11 vertices and 30 edges. The weight of a minimum spanning tree of G is 500. When the weight of each edge of G is increased by five, what i a. 500 b. 550 c. 1500 d. 2500 × e. None of the above Your answer is incorrect. The correct answer is.	s the weight of a minimum spanning tree?
Ocession 9 Incomes: Let G be a connected undirected graph of 11 vertices and 30 edges. The weight of a minimum spanning tree of G is 500. When the weight of each edge of G is increased by five, what i a. 500 b. 500 c. 1500 d. 2500 X e. None of the above Your answer is incorrect. The correct answer is: 550	s the weight of a minimum spanning tree?
Question 9 becomes: Let G be a connected undirected graph of 11 vertices and 30 edges. The weight of a minimum spanning tree of G is 500. When the weight of each edge of G is increased by five, what i a. 500 b. 550 c. 1500 d. 2500 × e. None of the above Your answer is incorrect. The correct answer is.	s the weight of a minimum spanning tree?
Question 9 Incomet: Let G be a connected undirected graph of 11 vertices and 30 edges. The weight of a minimum spanning tree of G is 500. When the weight of each edge of G is increased by five, what i a. 500 b. 550 c. 1500 d. 2500 X e. None of the above Vour answer is incorrect. The correct answer is: 550	s the weight of a minimum spanning tree?
Ocession 9 Let G be a connected undirected graph of 11 vertices and 30 edges. The weight of a minimum spanning tree of G is 500. When the weight of each edge of G is increased by five, what i a. 500 b. 550 c. 1500 d. 2500 X e. None of the above Your answer is incorrect. The correct answer is: 550 Cuestion 10 Not asswered	s the weight of a minimum spanning tree?
Ocession 9 Let G be a connected undirected graph of 11 vertices and 30 edges. The weight of a minimum spanning tree of G is 500. When the weight of each edge of G is increased by five, what i a. 500 b. 550 c. 1500 d. 2500 X e. None of the above Your answer is incorrect. The correct answer is: 550 Cuestion 10 Not asswered	s the weight of a minimum spanning tree?
Ocession 9 Incomest Let G be a connected undirected graph of 11 vertices and 30 edges. The weight of a minimum spanning tree of G is 500. When the weight of each edge of G is increased by five, what is a. 500 a. 500 b. 550 c. 1500 e. Nane of the above Your answer is incorrect. The correct answer is: 550 Ocesion 10 Not answered Rents and of 100 How can one determine if a graph is acyclic?	s the weight of a minimum spanning tree?
Ocession 9 Incomest Let G be a connected undirected graph of 11 vertices and 30 edges. The weight of a minimum spanning tree of G is 500. When the weight of each edge of G is increased by five, what is a. 500 a. 500 b. 550 c. 1500 d. 2500 N e. None of the above Your answer is incorrect. The correct answer is: 550 Coession 10 Not assessed How can one determine if a graph is acyclic? a. Use a disjoint data structure, and do a union operation on each node until a find-set operation returns false.	s the weight of a minimum spanning tree?
Coestion 9 Let G be a connected undirected graph of 11 vertices and 30 edges. The weight of a minimum spanning tree of G is 500. When the weight of each edge of G is increased by five, what is a social so	s the weight of a minimum spanning tree?
Objection 9 Let G be a connected undirected graph of 11 vertices and 30 edges. The weight of a minimum spanning tree of G is 500. When the weight of each edge of G is increased by five, what is a 500 b 550 c c 1500 e d 2500 X e e. None of the above Your answer is incorrect. The correct answer is: 550 Cuestion 10 How can one determine if a graph is acyclic? a. Use a disjoint data structure, and do a union operation on each node until a find-set operation returns false. b. Insert edges into a in min priority queue, and extract based on the node's distance from a source node. c. Use a DFS to determine if the graph has back edges.	s the weight of a minimum spanning tree?
Ocession 9 Let G be a connected undirected graph of 11 vertices and 30 edges. The weight of a minimum spanning tree of G is 500. When the weight of each edge of G is increased by five, what it a. 500 a. 500 b. 550 c. 1500 d. 2500 X e. None of the above Your answer is incorrect. The correct answer is: 550 Cuestion 10 How can one determine if a graph is acyclic? a. Use a disjoint data structure, and do a union operation on each node until a find-set operation returns false. b. Insert edges into a in min priority queue, and extract based on the node's distance from a source node. c. Use a DFS to determine if the graph has back edges. d. All of the above are ways to determine if a graph is acyclic.	s the weight of a minimum spanning tree?
Objection 9 Let G be a connected undirected graph of 11 vertices and 30 edges. The weight of a minimum spanning tree of G is 500. When the weight of each edge of G is increased by five, what is a 500 b 550 c c 1500 e d 2500 X e e. None of the above Your answer is incorrect. The correct answer is: 550 Cuestion 10 How can one determine if a graph is acyclic? a. Use a disjoint data structure, and do a union operation on each node until a find-set operation returns false. b. Insert edges into a in min priority queue, and extract based on the node's distance from a source node. c. Use a DFS to determine if the graph has back edges.	s the weight of a minimum spanning tree?
Ocession 9 Let G be a connected undirected graph of 11 vertices and 30 edges. The weight of a minimum spanning tree of G is 500. When the weight of each edge of G is increased by five, what it a. 500 a. 500 b. 550 c. 1500 d. 2500 X e. None of the above Your answer is incorrect. The correct answer is: 550 Cuestion 10 How can one determine if a graph is acyclic? a. Use a disjoint data structure, and do a union operation on each node until a find-set operation returns false. b. Insert edges into a in min priority queue, and extract based on the node's distance from a source node. c. Use a DFS to determine if the graph has back edges. d. All of the above are ways to determine if a graph is acyclic.	s the weight of a minimum spanning tree?
Ocession 9 Let G be a connected undirected graph of 11 vertices and 30 edges. The weight of a minimum spanning tree of G is 500. When the weight of each edge of G is increased by five, what it a. 500 a. 500 b. 550 c. 1500 d. 2500 X e. None of the above Your answer is incorrect. The correct answer is: 550 Cuestion 10 How can one determine if a graph is acyclic? a. Use a disjoint data structure, and do a union operation on each node until a find-set operation returns false. b. Insert edges into a in min priority queue, and extract based on the node's distance from a source node. c. Use a DFS to determine if the graph has back edges. d. All of the above are ways to determine if a graph is acyclic.	s the weight of a minimum spanning tree?