Unit 11 - Week 9

Assignment 9

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2020-04-01, 23:59 IST.

1) Which of the following is the most commonly used data structure for implementing Dijkstras Algorithm? *1 point*

(a) Max priority queue
(b) Stack
(c) Circular queue
(d) Min priority queue

a.
b.
c.
d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
d.

2) Is the following statement true? *1 point*
A DFS of a directed graph always produces the same number of tree edges, i.e. independent of the order in which the vertices are considered for DFS.

(a) Yes
(b) No

a.
b.

No, the answer is incorrect.
Score: 0
Accepted Answers:
b.

3) Which of the following are the properties of Shortest path? *1 point*

(a) Triangle inequality For all $(u, v) \in E$, we have $\delta(s, v) \leq \delta(s, u) + w(u, v)$.
(b) Upper-bound property: If d[v] $\geq \delta(s, v)$ $\forall$ v. than d[v] $= \delta(s, v)$,
(c) No-path property: If $\delta(s, v) = \infty$, then d[v] $= \infty$ always.
(d) All of these

a.
b.
c.
d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
d.

4) What is running time of Dijkstras algorithm using Binary min- heap method? *1 point*

(a) $\mathcal{O}(|V|)$
(b) $\mathcal{O}(|V|log|V|)$
(c) $\mathcal{O}(|E|)$
(d) $\mathcal{O}(|E|log|V|)$

a.
b.
c.
d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
d.

5) How many times the for loop in the Bellmann Ford Algorithm gets executed? *1 point*

(a) V times
(b) $V - 1$ times
(c) E times
(d) $E - 1$ times

a.
b.
c.
d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
b.

6) Which of the following can be solved using BFS *1 point*

(a) Testing wheather the graph is connected.
(b) Computing a spanning forest of the graph.
(c) Computing a cycle in a graph or reporting that no such such cycle exist.
(d) All of these above.

a.
b.
c.
d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
d.

7) In a weighted graph, assume that the shortest path from a source s to a destination t is correctly calculated using a shortest path algorithm. Is the following statement true? *1 point*
"If we increase weight of every edge by 1, the shortest path always remains same."

(a) Yes
(b) No

a.
b.

No, the answer is incorrect.
Score: 0
Accepted Answers:
b.

8) Which of the following statements are true *1 point*
Statement1: A subpath of a shortest path is a shortest path.
Statement2: If a graph G contains a negetive weight cycle, then some shortest path may not be exist.

(a) Statement 1 is true but 2 is false
(b) Statement 1 is false but 2 is true
(c) Both are true

a.
b.
c.

No, the answer is incorrect.
Score: 0
Accepted Answers:
c.

9) The Breadth First Search algorithm has been implemented using the queue data structure. One possible order of visiting the nodes of the following graph is *1 point*

(a) MNOPQR
(b) NQMPOR
(c) QMNPRO
(d) QMNPOR

a.
b.
c.
d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
c.

10) In DFS, if(u, v) is an edge which connects two node such that they do not have any ancestor and a descendant relationship between them, than the edge is called *1 point*

(a) Tree edge
(b) Back edge
(c) Forword edge
(d) Cross edge

a.
b.
c.
d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
d.