Review Test - Algorithm and Data Structures

Max:Marks-12
Time: 10 min

* Required

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Which of the following statement are true? * 1 point

Statement 1: Depth First Search uses the stack data structure.

Statement 2: Breadth First Search uses the queue data structure.

Statement 3: Depth First Search uses a backtracking technique.

Statement 4: Breadth-first search uses the Branch-and-Bound traverse technique

- ○ only 1
- ○ only 1 and 2 only
- ◉ 1, 2 and 3 only
- ○ 1, 2, 3, and 4

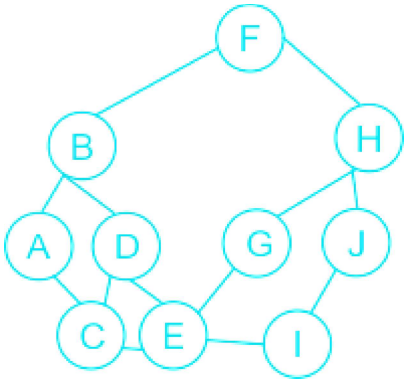
Depth First Search graph search algorithm uses _____ data structure for its implementation. * 1 point

- ○ Dequeue
- ○ Queue
- ○ tree
- ◉ Stack

Queue structure is used in _____ * 1 point

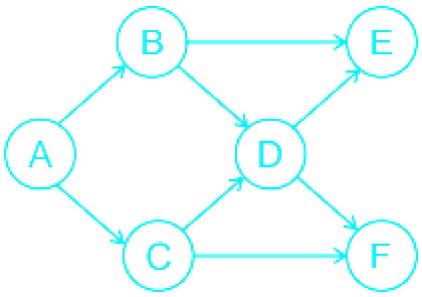
- ○ Depth First Search algorithm
- ○ Polynomial addition
- ◉ Breadth First Search algorithm
- ○ Recursion

What is the sequence of level order traversal in the following graph: * 1 point



- ○ A, D, G, J, C, E, I, F, B, H
- ○ F, B, G, J, C, H, A, D, E, I
- ◉ F, B, H, A, D, G, J, C, E, I
- ○ F, B, J, C, E, I, H, A, D, G

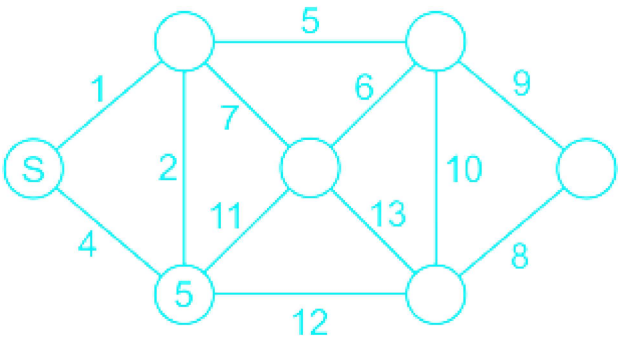
How many topological orderings for the given graph? * 1 point



- 2
- 3
- 4
- 5

Consider the following graph. * 1 point

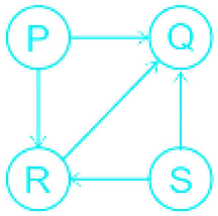
Assume node 'S' as the starting vertex for Prim's algorithm. Which of the following can be the correct order of edges in which they are added to construct MST?



- 1,2,4,5,6,8,9
- 1,2,5,6,9,8
- 1,2,5,6,8,9
- None of the above

Consider the directed graph given below. 1 point

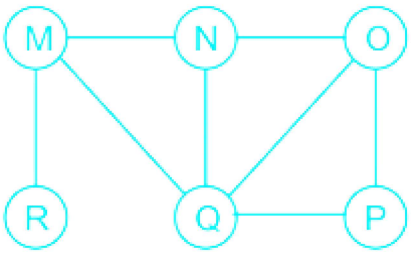
Which one of the following is TRUE?



- ○ The graph does not have any topological ordering
- ○ Both PQRS and SRQP are topological orderings
- ◉ Both PSRQ and SPRQ are topological orderings
- ○ PSRQ is the only topological ordering

Clear selection

The Breadth First Search (BFS) algorithm has been implemented using the queue data structure. Which one of the following is a possible order of visiting the nodes in the graph below? * 1 point



- ◉ MNOPQR
- ○ NQMPOR
- ○ QMNROP
- ○ POQNMR

Match the above algorithms on the left to the corresponding design paradigm they follow * 4 points

	Greedy Method	Divide and conquer	Depth-first search	Greedy design
Dijkstra's Shortest Path	○	○	○	◉
Backtracking search on a graph	○	○	◉	○
Prim's algorithm for minimum spanning tree	◉	○	○	○
Merge sort	○	◉	○	○

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