

**SYNERGY INSTITUTE OF ENGINEERING AND TECHNOLOGY, DHENKANAL**

Near NH-55, Banamali Prasad – 759001

**Quiz-VII**

**Full Marks-05**

**Duration-05 Min**

**Subject with Code:** DAA\_LAB (CSPC2206)

**Year & Semester:** 2nd & 4th

**Course & Branch**: B. Tech. & CSE

**Name: Registration No-**

**Roll No-**

Answer All Questions

**Tick the Correct Answer/Answers**

|  |  |  |  |
| --- | --- | --- | --- |
| **Course Outcome** | **Total Marks** | **Marks Secured** | **Signature of Evaluator** |
| **CO3** | **05** |  |  |

**1.Prim’s algorithm is used to find: [0.5 Mark][CO3][L3]**  
a) Shortest path in a graph  
b) Minimum Spanning Tree (MST)  
c) Topological order  
d) Longest path in a graph

**2.Prim’s algorithm is based on which design technique? [0.5 Mark][CO3][L3]**  
a) Divide and Conquer  
b) Backtracking  
c) Dynamic Programming  
d) Greedy Method

**3.Prim’s algorithm works on which type of graph? [0.5 Mark][CO3][L3]**  
a) Directed  
b) Undirected  
c) Both directed and undirected  
d) Only acyclic graphs

**4.Which of the following is true about Prim’s algorithm? [0.5 Mark][CO3][L3]**  
a) It starts with a cycle  
b) It starts with an edge  
c) It starts with a vertex  
d) It starts with a minimum degree vertex

**5.Which data structure is typically used to implement Prim’s algorithm efficiently? [0.5 Mark][CO3][L3]**  
a) Stack  
b) Queue  
c) Priority Queue (Min-Heap)  
d) Hash Table

**6.Time complexity of Prim’s algorithm using min-heap and adjacency list is: [0.5 Mark][CO3][L3]**  
a) O(V²)  
b) O(E log V)  
c) O(V + E)  
d) O(E²)

**7.Prim’s algorithm always produces: [0.5 Mark][CO3][L3]**  
a) A shortest path tree  
b) An approximate MST  
c) A unique MST  
d) A minimum spanning tree (not necessarily unique)

**8.Prim’s algorithm differs from Kruskal’s algorithm in that: [0.5 Mark][CO3][L3]**  
a) Prim’s algorithm works only on weighted graphs  
b) Prim’s algorithm builds the MST one vertex at a time  
c) Prim’s algorithm can’t handle negative weights  
d) Prim’s algorithm uses union-find

**9.Which vertex is selected next in Prim’s algorithm? [0.5 Mark][CO3][L3]**  
a) The vertex with the minimum edge weight connected to the current MST  
b) Any vertex not in MST  
c) The vertex with the maximum degree  
d) Randomly selected vertex

**10.If Prim’s algorithm is run on a graph with** V **vertices and** E **edges using an adjacency matrix, what is the time complexity? [0.5 Mark][CO3][L3]**  
a) O(E log V)  
b) O(V log V)  
c) O(V²)  
d) O(E + V)