Question No: 1 (Marks: 1) - Please choose one

An optimization problem is one in which you want to find,

- ► Not a solution
- ► An algorithm
- ► Good solution
- ► **The best solution (Page 97)**

Question No: 2 (Marks: 1) - Please choose one

Although it requires more complicated data structures, Prim's algorithm for a minimum spanning tree is better than Kruskal's when the graph has a large number of vertices.

- ► **True click here 4 detail**
- ► False

Question No: 3 (Marks: 1) - Please choose one

If a problem is in NP, it must also be in P.

- ► True
- ► False
- ► **unknown (Page 173)**

Question No: 4 (Marks: 1) - Please choose one

What is generally true of Adjacency List and Adjacency Matrix representations of graphs?

- ► **Lists require less space than matrices but take longer to find the weight of an edge (v1,v2)**
- ► *Lists* require less space than *matrices* and they are faster to find the weight of an edge (v1,v2)
- ► *Lists* require more space than *matrices* and they take longer to find the weight of an edge (v1,v2)
- ► *Lists* require more space than *matrices* but are faster to find the weight of an edge (v1,v2)

click here 4 detail

Question No: 5 (Marks: 1) - Please choose one

If a graph has v vertices and e edges then to obtain a spanning tree we have to delete

- ► v edges.
- ► v – e + 5 edges

► v + e edges.
► **None of these**

Question No: 6 (Marks: 1) - Please choose one
Maximum number of vertices in a Directed Graph may be $|V^2|$
► True
► **False** **click here for details**

Question No: 7 (Marks: 1) - Please choose one
The Huffman algorithm finds a (n) _____ solution.
► **Optimal** **click here for detail**
► Non-optimal
► Exponential
► Polynomial

Question No: 8 (Marks: 1) - Please choose one
The Huffman algorithm finds an exponential solution
► True
► **False**

Question No: 9 (Marks: 1) - Please choose one
The Huffman algorithm finds a polynomial solution
► True
► **False**

Question No: 10 (Marks: 1) - Please choose one
The greedy part of the Huffman encoding algorithm is to first find two nodes with **larger** frequency.
► True
► **False (Page 100)**

Question No: 11 (Marks: 1) - Please choose one
The codeword assigned to characters by the Huffman algorithm have the property that no codeword is the postfix of any other.

► **True (Page 101)**
► False

Question No: 12 (Marks: 1) - Please choose one
Huffman algorithm uses a greedy approach to generate a postfix code T that minimizes the expected length B (T) of the encoded string.
► True
► **False (Page 102)**

Question No: 13 (Marks: 1) - Please choose one
Shortest path problems can be solved efficiently by modeling the road map as a graph.
► **True (Page 153)**

► False

Question No: 14 (Marks: 1) - Please choose one
Dijkestra's single source shortest path algorithm works if all edges weights are non-negative and there are negative cost cycles.

► True
► **False (Page 159)**

Question No: 15 (Marks: 1) - Please choose one
Bellman-Ford allows negative weights edges and negative cost cycles.

► True
► **False (Page 159)**

Question No: 16 (Marks: 1) - Please choose one
The term "coloring" came form the original application which was in architectural design.

► True
► **False (Page 176)**

Question No: 17 (Marks: 1) - Please choose one
In the clique cover problem, for two vertices to be in the same group, they must be adjacent to each other.

► **True (Page 176)**
► False

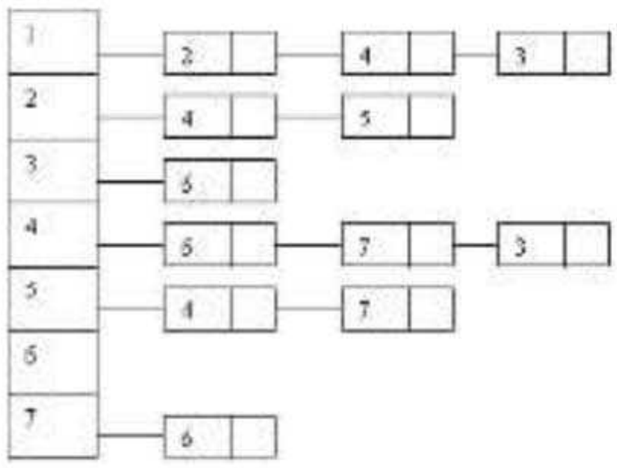
Question No: 18 (Marks: 1) - Please choose one
Dijkstra's algorithm is operates by maintaining a subset of vertices

► **True (Page 155)**
► False

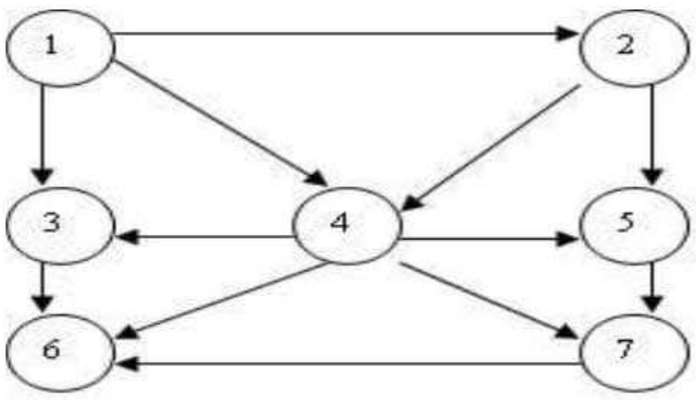
Question No: 19 (Marks: 1) - Please choose one
The difference between Prim's algorithm and Dijkstra's algorithm is that Dijkstra's algorithm uses a different key.

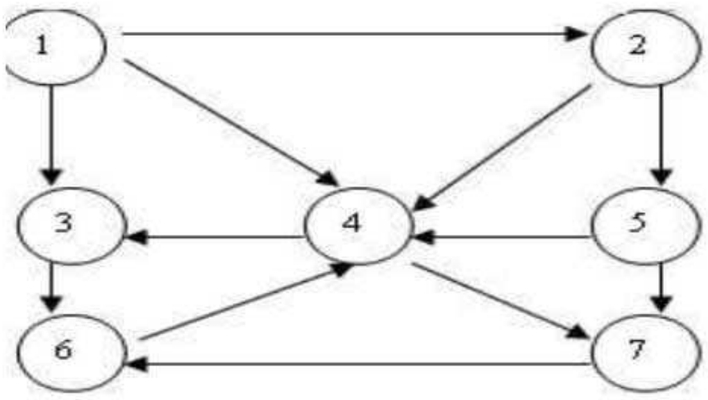
► **True (Page 156)**
► False

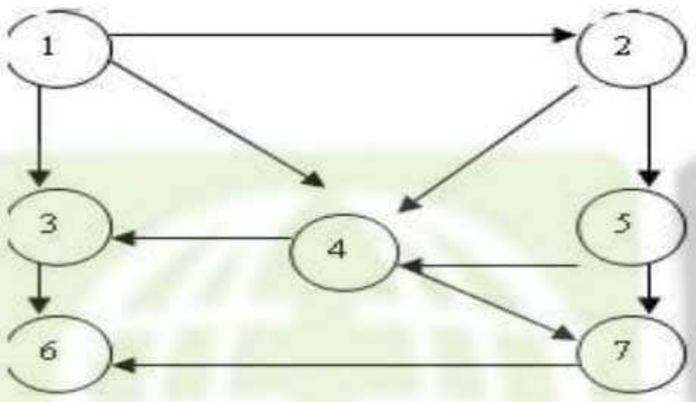
Question No: 20 (Marks: 1) - Please choose one
Consider the following adjacency list:

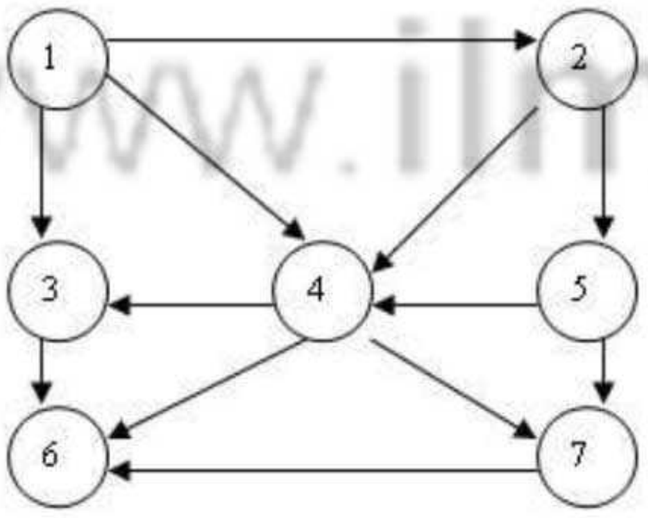


Which of the following graph(s) describe(s) the above adjacency list?









► **Correct Option**

Question No: 21 (Marks: 1) - Please choose one

We do sorting to,

- ► keep elements in random positions
- ► keep the algorithm run in linear order
- ► keep the algorithm run in (log n) order
- ► **keep elements in increasing or decreasing order (Page 40)**

Question No: 22 (Marks: 1) - Please choose one

After partitioning array in Quick sort, pivot is placed in a position such that

- ► **Values smaller than pivot are on left and larger than pivot are on right (Page 48)**
- ► Values larger than pivot are on left and smaller than pivot are on right
- ► Pivot is the first element of array
- ► Pivot is the last element of array

Question No: 23 (Marks: 1) - Please choose one

Merge sort is stable sort, but not an in-place algorithm

- ► **True (Page 54)**
- ► False

Question No: 24 (Marks: 1) - Please choose one

In counting sort, once we know the ranks, we simply _____ numbers to their final positions in an output array.

- ► Delete
- ► **copy (Page 57)**
- ► Mark
- ► arrange

Question No: 25 (Marks: 1) - Please choose one

Dynamic programming algorithms need to store the results of intermediate sub-problems.

- ► **True (Page 75)**
- ► False

Question No: 26 (Marks: 1) - Please choose one

A p × q matrix A can be multiplied with a q × r matrix B. The result will be a p × r matrix C. There are (p . r) total entries in C and each takes _____ to compute.

- ► **O (q) (Page 84)**
- ► O (1)
- ► O (n^2)
- ► O (n^3)