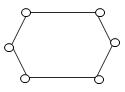
**UNIT 4 – Backtracking and Branch & Bound MCQs**

1. [](https://www.sanfoundry.com/wp-content/uploads/2019/06/chromatic-number-multiple-choice-questions-answers-mcqs-q12.png)What will be the chromatic number of the following graph?  
     
   a) 1 **b) 2** c) 3 d) 4

2. What is the condition for proper coloring of a graph?

**a) two vertices having a common edge should not have same color**

b) two vertices having a common edge should always have same color

c) all vertices should have a different color

d) all vertices should have same color

3. What is a chromatic number?

a) The maximum number of colors required for proper edge coloring of graph

b) The maximum number of colors required for proper vertex coloring of graph

**c) The minimum number of colors required for proper vertex coloring of graph**

d) The minimum number of colors required for proper edge coloring of graph

4. The Data structure used in standard implementation of Breadth First Search is?

a) Stack **b) Queue** c) Linked List d) Tree

5. The Data structure used in standard implementation of Depth First Search is?

**a) Stack** b) Queue c) Linked List d) Tree

6. Backtracking algorithm is implemented by constructing a tree of choices called as?

**a) State-space tree** b) State-chart tree c) Node tree d) Backtracking tree

7. A node is said to be \_\_\_\_\_\_\_\_\_\_\_\_ if it has a possibility of reaching a complete solution.

a) Non-promising **b) Promising** c) Succeeding d) Preceding

8. In what manner is a state-space tree for a backtracking algorithm constructed?

a) **Depth-first search** b) Breadth-first search c) Twice around the tree d) Nearest neighbour first

9. \_\_\_\_\_\_\_\_\_\_\_ enumerates a list of promising nodes that could be computed to give the possible solutions of a given problem.

a) Exhaustive search b) Brute force **c) Backtracking** d) Divide and conquer

10. A\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_is a round trip path along n edges of G that visits every vertex once and return to its starting position

a) MST b) TSP c) Multistage Graph **d) Hamiltonian Cycle**

11. In general, backtracking can be used to solve?

a) Numerical problems b)Exhaustive search **c)Combinatorial problems** d)Graph coloring problems

12. Which of the following is not a branch and bound strategy to generate branches?

a) LIFO branch and bound b) FIFO branch and bound

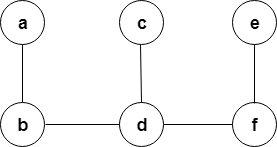
c) Lowest cost branch and bound **d) Highest cost branch and bound**

13. Which of the following can traverse the state space tree only in DFS manner?

a) branch and bound b) dynamic programming c) greedy algorithm **d) backtracking**

14.which of the following problems is similar to that of a Hamiltonian path problem?

a) knapsack problem b) closest pair problem

c) **travelling salesman problem** d) assignment problem

15. How many Hamiltonian paths does the following graph have?

**a) 1**  b) 2 c) 3 d) 4