College of Engineering Trivandrum
Department of Computer Applications
Third Semester M.C.A Degree

First Series Examination January-2022

20MCA203: Design and Analysis of Algorithms

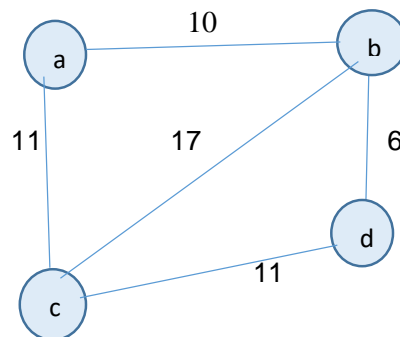**Time :1 Hr**   **Max Marks :20**

PART-A

(*Answer all questions. Each question carries 2.5 marks*)

1. What is an algorithm? How to measure the performance of an algorithm?

2. Write an algorithm to compute the sum of n numbers and find its time and space complexity?

3. What do you mean by minimum cost spanning tree? Consider the following graph.

What is the weight of the MST using Prim's algorithm?

4. Discuss the control abstraction of Greedy strategy.

(**Total: 4*2.5 =10 marks**)

PART-B
(*Each question carries 5 marks*)

5. What is meant by asymptotic complexity of an algorithm? Explain the three notations used for representing asymptotic complexity?

OR

6. Explain how divide and conquer strategy is used in Merge sort.

7. Discuss the knapsack problem with an example.

OR

8. Show that the Bellman-Ford algorithm fails, if there is a cycle in the graph

(**Total : 2*5 = 10 marks**)