
INDIAN INSTITUTE OF TECHNOLOGY KHARAGPUR
CS21003 Algorithms I: Third Class Test 2022 Spring

Date of Examination: 26th March 2022

Duration: 30 minutes + 5 minutes (for scanning, concatenating, and uploading)

Full Marks: 20

Subject: CS21003 Algorithms I

Part II

1. Given a weighted undirected graph where the weights can be an integer in the range $[-50, 50]$, both inclusive, where the graph may not be fully connected, present an efficient algorithm to find the Minimum Cost Spanning Forest. For this you will do the following:
 - (a) Write down the basic idea in a few sentences.
 - (b) Present the algorithm in proper precise pseudo-code.
 - (c) Show its working on a suitable example of 7 nodes having 2 connected components.
 - (d) Analyse the time and space complexity of the algorithm.

[20 Marks]

All the best
