INDIAN INSTITUTE OF TECHNOLOGY KHARAGPUR
Algorithmic Game Theory 2021-22: Fourth Class Test

Date of Examination: 13th October 2021
Duration: 20 minutes (for writing answers) + 5 minutes (for taking photos, concatenating, and uploading to moodle)
Subject: CS60025 Algorithmic Game Theory

Prove or disprove:

1. The number of iterations that the men proposing deferred acceptance algorithm takes on an instance of the stable marriage problem is independent of how/which unmatched man we pick in an iteration.

2. The output of the men-proposing deferred acceptance algorithm is woman-pessimal. That is, there does not exist any other stable matching where a woman is matched with a man whom she prefers less than her partner in the output of the men-proposing deferred acceptance algorithm.

[5+5 Marks]