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

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**Date of Examination: 25th September 2021**

**Duration: 15 minutes (for writing answers) + 5 minutes (for taking photos, concatenating, and uploading to moodle)**

**Subject: CS60025 Algorithmic Game Theory**

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In Local-Weighted-Max-2SAT problem, we are given a set of 2SAT clauses each having a weight. An assignment of the variables is said to satisfy a clause if and only if it makes at least one of its literal true. The goal is to find an assignment which is locally optimal — by changing the assignment of any one variable, it is not possible to increase the sum of weights of the clauses satisfied. Prove that Local-Weighted-Max-2SAT is PLS-complete.

**[10 Marks]**