CSCI 538 Computability

Assignment 3 (10 marks)

Question 1 (2 marks)

Problem 7.12 (7.11, 2nd edition)—the ISO problem.

Question 2 (2 marks)

Problem 7.26 (7.24, 2nd edition)—the Not-All-Equal-3SAT problem.

Question 3 (2 marks)

Problem 7.27 (7.25, 2nd edition of Sipser)—the MAX-CUT problem.

Question 4 (2 marks)

Problem 7.29 (7.27, 2nd edition of Sipser)—the 3COLOR problem.

Question 5 (2 marks)

Define Equal-size Set-Partition as the restricted version of Set-Partition: S_1 and S_2 needs to partition the input $S = \{a_1, a_2, ..., a_{2n}\}$ of 2n integers, i.e., $\sum_{a \in S_1} a = \sum_{b \in S_2} b$; moreover, $|S_1| = |S_2| = n$, i.e., they need to have the same size. Prove that Equal-size Set-Partition is NP-complete.

Date Due: 8:30pm, Thursday, March 28, 2024. You should upload your assignment in pdf format on D2L, under the "Assignment 3" directory.