Instructions

Rules for Completing the Problem

When solving this problem you may only reference course artifacts, including the lecture notes and recordings, textbook, and any notes/solutions you have handwritten during the course and prior to the quiz. Communicating with others (whether inside or outside of class) or finding solutions online is considered cheating and is grounds for receiving an F grade for the class. Show all work to receive full credit.

Submitting your work

Submit a single file with your handwritten solution to the appropriate drop box by 10:00 am. Make sure you provide your name and SID in the upper-right corner of your solution.

Late submissions

Should you submit after the dropbox deadline, solutions received no later than 10 minutes after the deadline will lose 20% of the earned points. Solutions received between 11 and 20 minutes after the deadline will 50% of the points. All other late submissions will not be graded.

Problem 4

a. Rakesh's logistics project requires that he determine whether or not a particular undirected graph $G = (V, E)$ has a Hamilton Path from vertex a to vertex b. Moreover, his colleague Jennifer has implemented a function that takes as input a simple undirected graph $G = (V, E)$ and returns true iff G has a Hamilton Cycle. Jennifer said to him, "you may use my function to get your answer, just make sure to add an edge that connects a with b". Give an example that shows that the answer returned by Jennifer's function might not coincide with the answer to Rakesh's original problem. (15 points)

b. What modification should Jennifer have asked Rakesh to make to his graph so that her program's answer would be sure to coincide with the answer to Rakesh's original problem? (10 pts)