CSE317 Design & Analysis of Algorithms (Spring'19)

Quiz #6

Max Marks: 10 *Time Allowed:* 15 minutes

Name: _____ **ERP:** _____

Question 1: Coin-collecting problem ..... *10 marks*

Several coins are placed in cells of an $n \times m$ board, no more than one coin per cell. A robot, located in the upper left cell of the board, needs to collect as many of the coins as possible and bring them to the bottom right cell. On each step, the robot can move either one cell to the right or one cell down from its current location. When the robot visits a cell with a coin, it always picks up that coin. Design a $O(nm)$ time algorithm to find the maximum number of coins the robot can collect and a path it needs to follow to do this.