Heuristic Function-1:

The function checks the area currently flooded by the color at the top left position of the matrix.Since g value is the same for states in the same level of the state tree the priority of the states are determined by the heuristic function.So the state which has flooded a larger region is given higher priority.This function does not always give the optimal solution.

Heuristic Function-2:

This function utilizes function-1 and adds another constraint.The function not only considers the area flooded but also takes into consideration the number of colors remaining on the matrix.Function-2 first takes the h value of function-1.Then it checks the number of colors present on the board.Next it calculates the value of h the following way.

$$h2=h1-(countOfColors^2)$$

Comparision:

Both the functions perform almost the same.Function-2 might give better performance for boards having more than 3 colors.