BRAC UNIVERSITY
CSE460
VLSI DESIGN
Assignment - 2

Name: ***ID:*** ***Section:***

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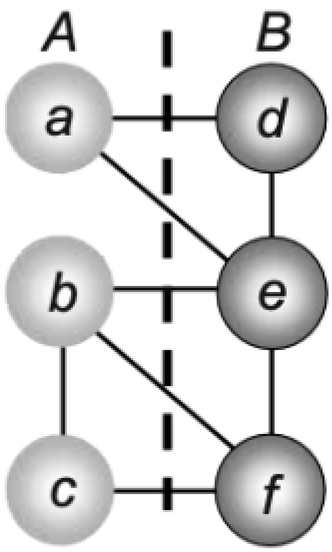
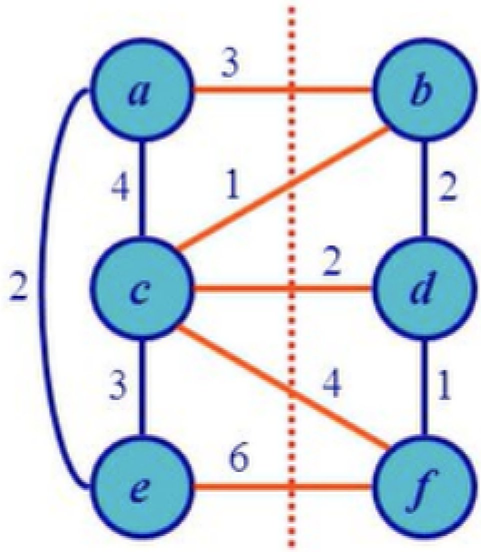
1. The graph below (nodes *a*-*f*) can be optimally partitioned using the Kernighan-Lin algorithm. Perform the first pass of the algorithm. The dotted line represents the initial partitioning. Assume all nodes have the same weight and all edges have the same priority. **Show the changed graph after every iteration, the final optimized graph, and the cut cost in each iteration.**



2. The graph below (nodes *a-f*) can be optimally partitioned using the Kernighan-Lin algorithm. Perform the first pass of the algorithm. The dotted line represents the initial partitioning. **Show the changed graph after every iteration, the final optimized graph, and the cut cost in each iteration. Assume the numbers in the figure are the weights of the corresponding connections. See the hint below to understand how to handle weighted cases. The remaining process is the same as unweighted cases.**



[Hint: Initial cut cost = 3+1+2+4+6 = 16,

Ec(a) = 3, Enc(a) = 6,

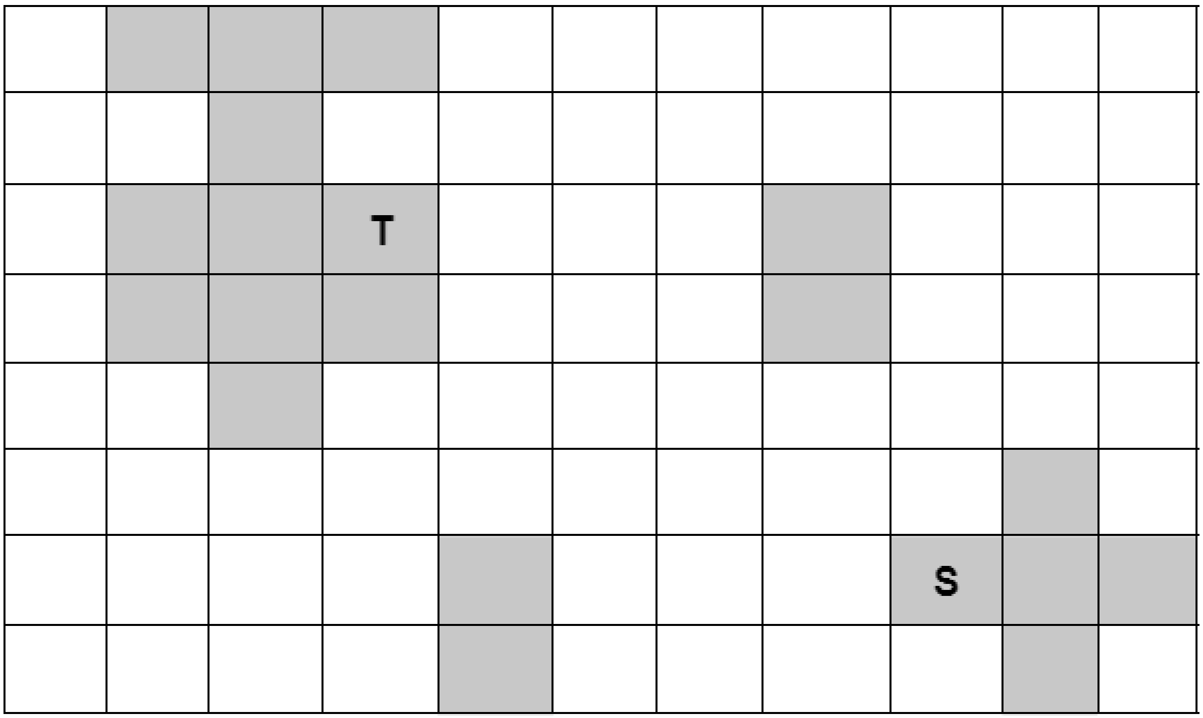
D(a) = 3-6 = -3,

D(b) = (3+1)-2 =2,

c(a,b) = 3,

g(a,b) =D(a) + D (b) - 2c(a,b) = -3 + 2 - 2.(3) = -7]

3. Find the shortest routing path from Source (S) to Target (T) using Lee's Maze algorithm. Find the memory requirements for the calculation. Dark regions are obstacles or components. **You can either print the grids or redraw them as many times as you need.**



4. Find the shortest routing path from Source (S) to each target using Lee's Maze algorithm. Find the memory requirements for the calculation. Dark regions are obstacles or components. **You can either print the grids or redraw them as many times as you need.**