Assignment One

(For Those who have less than six marks in Test1)

1) Write and explain parallel BFS algorithms (i) using CRCW with no atomics (ii) using atomics. How performance varies among two algorithms for different types graphs based on properties diameter, avergage outdegree, maximum outdegree, and minimum out degree.

2) Write and explain parallel SSSP algorithm covered in the class. Illustrate with an example. Can the algorithm be optimized for reducing atomic operations in one execution of the algorithm, and reduce unwanted computation? Justify your answer.

(For those who have marks greater than or equal to seven in Test1)

1) Write and explain Delta- Stepping SSSP algorithm, and illustrate with an example. What is the time complexity of the algorithm?

2) Write and explain Cannon's distributed matrix multiplication algorithm with an example.