EECS-358 ASSIGNMENT 2

Problem 1:

a) Total time = (ts + m * tw) * log(p) + 2 * th * sqrt(p) -1

(10 + 1000 * 0.01) * log(36) + 2 * 2 * 5 = 123.38 microseconds

b) Cut-Through routing does not provide any additional improvement of store and forward routing for all-to-all scatter.

Total time for store and forward routing = (2 * ts + tw * m * p) * (sqrt(p)-1)

(20 + 360) * 5 = 1900 microseconds

c) Upper bound for circular shift with stride 4 = (ts + tw * m) (sqrt(p) + 1)

(10 + 10)(7) = 140 microseconds

Problem 2:

Time for Processor 1 : 2.4083s
Time for Processor 2 : 1.2280s
Time for Processor 4 : 0.6045s
Time for Processor 8 : 0.3043s
Time for Processor 16 : 0.4784s

Problem 3:

Time for Processor 1 : 160.3680s
Time for Processor 2 : 85.3801s
Time for Processor 4 : 76.0256s
Time for Processor 8 : 79.5073s
Time for Processor 16 : 186.6670s