COS 122 Assignment 2

Scott Bebington

U21546216

Task 1

1.1) B
1.2) C
1.3) C
1.4) D
1.5) C

Task 2

2.1) 24% serial

Therefor f = 0.76

N = 8 as there are 8 processors

Speedup = 1 / ((1-f) + (f / N))

Speedup = 1 / ((1-0.76) + (0.76 / 8))

Speedup = 2.985

Task 3

3.1) 20s

3.2) 74s

3.3) P1 Waiting time = 48s

P2 Waiting time = 36s

P3 Waiting time = 36s

P4 Waiting time = 42s

Average waiting time = (48 + 36 + 36 + 42) / 4

Average waiting time = 40.5s

3.4) P3 would have less “ready” time as the I/O operations would take some of that time, however this would impact the run time as I/O operations take preference.

3.5) (Tr / Ts) = 1 / (1 – p)

Tr = Ts (1 / (1-p))

Task 4

4.1) Both processes are in secondary memory however blocked / suspended is waiting for an event to happen before it can be loaded into main memory, whereas ready / suspended process is ready to be executed as soon as it is loaded into the main memory.

4.2) The program running may ask the user for an input, the process may not continue until the user inputs data.