

CDA3101
Assignment 1
Computer Measurements

Objectives: Learn how to apply various measurements associated with a computer.

Put all answers on this sheet. Show your work (this is required for full credit and helpful for partial credit).

1. Consider a computer system, where each processor can independently perform a separate task. Given that the *response time* on a computer system for a single task is 12 seconds, how long would it take to perform 18 tasks on this system when it has four processors? What would be the *throughput* per second for 18 tasks? (20 points)
2. Machine A can perform 3 tasks in 6 seconds. Machine B can perform 2 tasks in 5 seconds. Which machine can perform a task faster? How much faster is this machine than the other. (20 points)
3. Given that a program on a machine requires an average of 3 cycles per instruction, the machine has a 2 GHz clock rate, and the program executes a total of 40,000,000,000 instructions, what is the CPU time in seconds required by this program? (20 points)

6. Suppose the clock period is 250 picoseconds. What is the clock rate in gigahertz (GHz)? (10 points)