# HW#1, CSIT431 Introduction to Operating Systems

# Fall 2016

SUNY at Fredonia, Fredonia, New York

(Group/Individual Assignment)

Maximum Points 100

Note: You may work with one more student to solve this assignment. Submit it in the OnCourse drop box. No more than 2 students per group.

**Assigned:** Sept 7th **Due:** Sept 16th

Q1, Q2: See Attached Files

## 60 Points

Q2. Consider a 32-bit microprocessor that has 32-bit instructions. Each instruction has the first byte as an op code followed by 3 bytes operand data or address of the operand.

1. What is the size of the instruction register (IR) in bytes?

4 bytes

1. What is the size of the program counter (PC) in bytes?

**4 bytes**

1. What is the maximum size of the main memory in MB (Megabytes)?

Number of bits = 2^32 = 4 GB = **4000MB**

**10 Points**

Q3. Assume CTSS loads or stores 1 word per millisecond to the hard disk. Consider Figure 2.7 as in the slides. How much time did we save when we reloaded Job-2?

**5,000 ms**

**20 Points**

Q4. Read section 1.8 on “Multiprocessor and Multicore organization” and explain the difference between SMP and multicore computers.

**Multicore computers have multiple processors on a single die where SMP has multiple processors connected by a System Bus.**

**10 Points**