CSE 341 Microprocessors

Fall 2022

Assignment 2

ANSWER ALL THE QUESTIONS

[CO2] **1**. Assume an 8086 microprocessor has been set to operate at 11.5 MHz and at 40% duty cycle. [4 marks]
Calculate:
a. Time for 1 clock pulse
b. Time for 1 bus cycle
c. Total time in nanoseconds each clock pulse stays low
d. Suppose a certain instruction takes 2 Bus cycles to complete. So calculate the duration of instruction cycle.

[C02] **2.** Draw the timing diagram of the following cases: [6 marks]
a. Write cycle of an Intel 8086 that is trying to write data to an external I/O.
Your diagram must show the states of pins connected with it.
b. Read cycle of an Intel 8086 that is trying to read data to memory.
Your diagram must show the states of pins connected with it.

[C02] **3** a. Explain in how many different ways data can be accessed from the Memory, assuming the memory is divided into even and odd banks? You must explain using the proper values of A0 and BHE' pins. [4 marks]
b. Why does accessing 16-bit data with an odd starting address require 2 bus cycles instead of 1? [2 marks]

[C04] **4.** Calculate the locations of CS and IP of the ISR for the interrupt TYPE 123 [4 marks]