Faculty of Engineering

**Computer and Systems Engineering Department**

Assignment 2

Design a program for a Tiva C microcontroller that controls a stepper motor connected to Port A (pins 0, 1, 2, and 3) of the microcontroller. The stepper motor movement should be triggered by external interrupts.

1. Implement the program using interrupt service routines (ISRs) to control the stepper motor when SW1 is pressed. There is one state for each output pattern in the usual stepper sequence 5,6,10,9…. as shown below in the FSM.
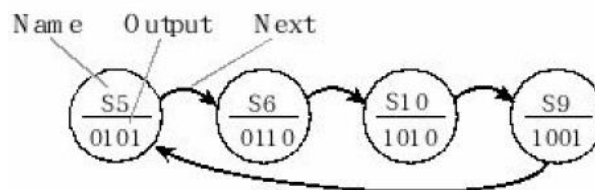
2. Modify question (1) to control the stepper motor that spins this motor at 6 RPM with 200 steps/rotation triggered by SysTick periodic interrupt.

Note: The usage of switch case statement to implement the above FSM would be easier in the interrupt handler to track the state of the motor.