Lab 1.2 Pseudocode

Compiler directives

#include <c8051\_SDCC.h>

#include <stdio.h>

#include <stdlib.h>

Function Prototypes

void Port\_Init(void)

void Timer\_Init(void)

void Interrupt\_Init(void)

void Timer0\_ISR(void) \_\_interrupt 1

unsigned char random(void)

void Timer0\_count(void)

Global Variables

unsigned int counts = 0

unsigned char c = 0

unsigned char score = 0

unsigned char incorrect = 0

unsigned char previousRand = 4

unsigned char ran

main function

declare local variables

(NONE)

Initialization functions

Sys\_Init()

Port\_Init()

Interrupt\_Init()

Timer\_Init()

Print “Start” to the console.

Begin Infinite Loop

If count equals 10

If slide switch is turned off

If slide switch is turned back on

Reset the count, correct responses, incorrect reponses.

If slide switch is on

While count is less than 10

While slide switch is off (stay in loop to pause the game)

If random number equals zero

Turn LED0 on

LED1 off

BILED0 is off

BILED1 is off

Timer0\_count() (light stays on for one second)

If PB0 is pressed and PB1 is not

BILED1 is on

BILED0 is off

Timer0\_count() (pause the program for response)

Add one to total score

Else

Add one to incorrect score total

Turn LED0 off

Turn BILED0 off

Turn BILED1 off

Else If random number equals one

LED0 off

LED1 on

Timer0\_count() (pause the program for response)

If PB1 is pressed and PB0 is not

Turn BILED0 off

Turn BILED1 on

Timer0\_count() (Pause the program for response)

Add one to total score.

Else

Add one to incorrect score total

Turn LED1 off

Turn BILED0 off

Turn BILED1 on

Else If random number equals two

Turn LED1 on

Turn LED0 on

Timer0\_count() (Pause the program for response)

Add one to total score

If PB0 is not pressed and PB1 is pressed

BILED0 is off

BILED1 is on

Timer0\_count() Score++

Else

Add one to incorrect score total

Turn LED0 off

Turn LED1 off

Turn BILED0 off

Turn BILED1 off

End For Loop

End Infinite For Loop

End main function

Port\_Init

Set port 3 output pins to push-pull mode

Set Port 3 input pins to open drain mode

Set Port 3 input pins to high impedance state

Set Port 2 input pin to open drain mode

Set Port 2 input pin to high impedance state.

Interrupt\_Init

Enable Timer0 Interrupt request (by masking)

Enable global interrupts (by sbit)

Timer\_Init

Timer0 uses SYSCLK as source

Clear the 4 least significant bits

Timer0 in mode1

Stop Timer0

Clear high and low byte of T0

Timer0\_ISR

Code increments the global variable counts

Timer0\_count

TMR0 = 0

Counts = 0

TRO = 1

While counts less than specified number for pauses

Do nothing

TRO = 0