



Final Lab Assessment

CSE360: Computer Interfacing

Department of Computer Science and Engineering

Total Marks: 10

[Complete all the blanks and commands with necessary information in the given C type file.
Also answer ALL 4 short questions.]

i) .C file

0.5 x 12 = 6

[Port A pin 9 for SCL and pin 10 for SDA]

```
void I2C_Acknowledgement_Check()
{
    // Handle Acknowledge Failure
    if (I2C2->SR1 & (a)___(1<<10)___) // I2C_SR1_AF
    {
        I2C2->SR1 (i)___&=___ (b)___~(1<<10)___; // Clear the AF flag
        I2C2->(j)___CR1 ___ || ___((c)___(1<<9)___); // Generate a stop
condition
    }
}

void I2C_Init()
{
    // Enabling Clock for I2C2
    RCC->APB1ENR |= ((d)___1<<22___); // RCC_APB1ENR_I2C2EN

    // Reset I2C2
    I2C2->CR1 |= ((e)___1<<15___); // I2C_CR1_SWRST
    I2C2->CR1 &= ~((f)___1<<15___); // Clear the SWRST bit

    I2C2->CCR |= ((g)___1<<15___); // Setting F/S bit for Fast Mode

    I2C2->CR2 =(h)___32<<0___; // Set APB1 clock frequency in 32 MHz
```

```

    I2C2->CCR =27;
    I2C2->TRISE =11;
}
void check_I2C2_mode(void)
{
    // Check if I2C is in master mode or slave mode (observe SR2
    register)
    if (I2C2->(k) MSL & ((1) 1<<0))
    {
        printf("I2C2 is in Master mode");
    }
    else
    {
        printf("I2C2 is in Slave mode");
    }
}

```

ii) Short Questions

1 x 4 = 4

a) Why is CCR value needed for I2C communication? What is its significance ?

Ans:

b) What is the significance of TRISE value ? What can happen if an incorrect TRISE value is set ?

Ans:

c) What is the role of the CR2 register in I2C2 communication?

Ans:

d) Why is the STOPF flag cleared before activating acknowledgement ? Explain

Ans:

